

American Models Shown in Paris

PARIS, France — American-made electric refrigerators had a conspicuous place in the Salon Des Arts Menagers, annual exposition of housewares conducted here recently, reports Arch Black of Melchior, Armstrong, Dessau Co., exporters, who is making a tour of European countries for his firm.

Kelvinator, Frigidaire, Norge, Westinghouse, Crosley, General Electric (under the name of Frigico), Apex, Servel, and Majestic were represented at the exposition with good displays, the Servel display, according to Mr. Black, being especially impressive.

French and German Makes

Refrigerators of French and German make were also exhibited at the showing, as well as Electrolux, of Sweden. Others included several assembled in the United States, and sold in Europe under the name of Arctic.

Frigivoy, one of the European-made refrigerators shown, uses a French-made cabinet in the smaller models, with a Gibson condensing unit. The larger size models are purchased from Gibson.

Small Frigelux Model

Electrolux (or Frigelux, as it is known on the Continent) is available in Europe for operation by electricity, gasoline, or kerosene, and is built in sizes which may be mounted on the wall at any convenient height. These are, of course, quite small, starting at about 25 litres (about 9/10 cu. ft.).

Prices, however, are high. The 25-litre Electrolux mentioned above, according to Mr. Black, sells in France for 1990 francs, about \$139.

Small boxes are popular, Mr. Black reports, especially those of around 3-cu. ft. capacity.

One application of refrigeration common in Europe and not in the United States is in the showcases in bakery shops, particularly in Holland. The case is similar to those in any bakery, but to keep the breads and pastries fresh a coil is placed in the box, and the temperature kept at around 50° F.

Frigico Plates in Apartments

Another application reported by Mr. Black is the use of Frigico plates for apartments. Patents on this application were taken out in the United States last year. Originally, this was intended for the preservation of salads, but European refrigeration engineers have cut the plates down to small slabs, and they are being used as shelves, for the housewife to set milk, butter, and other foods on.

The idea, Mr. Black says, is quite popular, especially in Holland and Denmark.

In general, European countries are far behind the United States in the development of refrigeration. Very few duplex installations are to be found in France and England, and most of those in the industry are thermostatic-minded, preferring not to risk pressurestats much.

Meat-cooling boxes in use on the Continent, according to Mr. Black, are very well constructed. Most of them are of tile, inside and out.

Beer cooling by mechanical refrigeration is not very popular, possibly because most of the devices on the market at present tend rather toward elaborateness than utility.

Troutwine Elected Head Of Boston League

BOSTON—Harry Troutwine, manager of the Boston branch office of Kelvinator Corp., was elected president of the Metropolitan Electrical League at the third annual refrigeration night of the electrical industry held March 14 at the Boston Chamber of Commerce building.

The Metropolitan Electrical League comprises in its membership all utilities, electrical dealers and contractors, wholesalers of electrical material, distributors, and dealers in the metropolitan Boston area.

Speakers on the program included President Howard E. Blood of Norge Corp., Sales Manager Frank R. Pierce of Frigidaire Corp., Vice President T. K. Quinn of General Electric Co., and Refrigeration Division Sales Manager Ray Cosgrove of Westinghouse Electric & Mfg. Co.

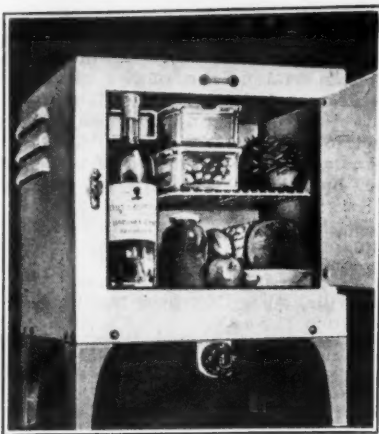
These men presented to those present their stories of market conditions, sales possibilities, and advertising policies for 1935.

Highlight of the meeting was the third annual singing contest between Kelvinator, Westinghouse, Norge, and General Electric sales organizations in Boston.

Kelvinator won, repeating its triumph of 1934 in capturing the silver cup offered as a prize by the Metropolitan Electrical League. The cup now becomes the permanent property of the Kelvinator Boston branch.

Each organization sang one of its own songs; i. e., the lyrics hymned the merits of the particular brand of electric refrigerator they are selling.

9-10ths Cubic Foot



Very popular seller in European refrigeration circles these days is this 9/10 cu. ft. Electrolux (or Frigelux, as it is known on the Continent). It may be operated with electricity, gasoline, or kerosene, and can be mounted on the wall of the kitchen if desired.

Turtles Used to Show Crosley Prices in Window

SPRINGFIELD, Ohio—V. J. Coughenour, Radio Electric Store, dealer for Crosley electric refrigerators, here, is utilizing turtles in a novel display to get his sales message to prospective buyers, reports H. W. Linard, general manager, The Burns Radio Co., Crosley distributor in Dayton.

In his show window Mr. Coughenour has placed five small turtles in a shallow pan of water, about five feet long and one foot wide. He has numbered the back of each turtle so that if they line up in the proper order the figures may give the price of a Crosley refrigerator, such as \$149.50 for an FA-60.

On the back of the pan, states Mr. Linard, he has a board covered with sand for the turtles to sun themselves. Anyone who finds the turtles on the bank in a position where the price of \$149.50 can be read from the window can claim a cash prize of \$50. "So far," says Mr. Linard, "his turtles have refrained from lining up in the proper order."

Home Economists & Editors Agree on Kitchen Planning Standards at Westinghouse Conference

MANSFIELD — Home economists and editors of women's and home magazines, attending a two-day "Kitchen Clinic" sponsored recently by Westinghouse Electric & Mfg. Co. here, agreed that the kitchen has three major divisions — refrigerator and preparation center, sink and dishwasher center, range and serving center.

Other decisions were made that all counters should extend one inch beyond the base cabinets, regardless of whether the toe space was two or three inches; that the proper counter height was 36 in.; sink, work surfaces, and flat top range uniform; that the color of range and refrigerator and dishwasher should be white; that there is more opportunity for selling dishwashers as a sink-dishwasher combination than as a separate and portable unit.

Subjects discussed at the round table discussion were kitchen division, kitchen arrangement, electrical equipment, associated equipment, kitchen

planning, and the utility home service representative.

The clinic was conducted by Irving W. Clark, in charge of Westinghouse kitchen planning and was opened by A. E. Allen, Westinghouse vice president in charge of merchandising activities.

Delegates included: Miss Katherine Fisher, director, Miss Demetria Taylor, and T. N. Henderson, Good Housekeeping Institute; Miss Grace Pennock, associate editor, *Ladies Home Journal*; Miss Mary Davis Gillies, and Miss Faye I. Hamilton, associate editors, *McCall's*; Mrs. Francis T. Heard, associate editor, *House Beautiful*; Miss Julia Bliss Joyner, food editor, and Lurelle Guild, consulting designer, *Pictorial Review*; Mrs. Mildred Madocks Bentley, director, Delineator Institute; Mrs. Nell B. Nichols, household editor, *Women's Home Companion*; Miss Jean Guthrie, associate editor, *Better Homes & Gardens*; Miss Eloise Davison, director, Domestic Electric Service, EH&FA.



Three LARKIN Factories ...for Greater Coil Service

IN the interest of greater service and quicker deliveries to distributors, dealers and users, the Larkin Refrigerating Corporation now has fully equipped factories in Atlanta, Chicago and New York. At each factory a staff of consulting engineers is ready to assist you with engineering problems involving any special size or type coil required as well as to render any desired service in connection with the regular line of 756 models.

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A new catalog containing mechanical data and much valuable information has just been issued. It fully explains Larkin's All Star features. If you have not received your copy write for it today on your company letterhead. Address Larkin Factory nearest you.



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DETROIT, MICHIGAN, APRIL 3, 1935

Copyright, 1935, by
Business News Pub. Co.THREE DOLLARS PER YEAR
TEN CENTS PER COPY**3 Units Added
to Westinghouse
Commercial Line****New Models Designed for
3 Different Suction
Pressure Ranges**

MANSFIELD—Refrigeration department of Westinghouse Electric & Mfg. Co. is introducing a new line of open-type commercial condensing units, designed in three suction pressure ranges.

The three new units, designated as models AFJ-100L, AFJ-100S, and AFJ-100H, are divided into low, standard and high suction pressure classifications.

The low suction pressure range unit of the new Westinghouse compressor extends from -31° F. to 5° F. The standard suction pressure range is from -13.5° F. to 20° F., while the high suction pressure range is from 10.5° F. to 40° F. This range of suction pressure may be had in all models ranging from 1 to 3 hp.

All air-cooled units are equipped with large size shrouded condensers. This feature, Westinghouse engineers declare, improves the operation of the unit by directing the entire flow of air through the condenser and over the motor with a new improved type of high speed fan.

With this directed air flow and a thermal overload switch furnished as standard equipment the motor has dual protection against possible damage from overload.

Although the suction and discharge valves are mounted on the side of the cylinder the valves are still contained in the head of the compressor, which is a feature Westinghouse has carried through their entire line of sealed and open-type condensing units.

In the design of this line, Westinghouse engineers have provided a sight gauge for easy determination of the oil level.

**Refrigerator Taxes Show
Big Gain in February**

WASHINGTON, D. C.—Manufacturers of mechanical refrigerators paid \$367,408 in taxes during February as against \$97,264 paid in February, 1934.

**Ice Cream Industry
Cited for War on
Counter Freezers**

WASHINGTON, D. C., March 29—A number of the principal dairy companies in the country were charged with unlawful restraint of trade through their efforts to fight off the inroads in their business made by the counter-type ice cream freezer in a Federal Trade Commission complaint made public last Friday.

In its complaint the Federal Trade Commission, for the first time in its history, charges improper legislative activity.

The complaint charged that the companies named attempted to destroy the sale and operation of counter ice cream freezers by a variety of methods, chiefly the sponsoring of legislation and city ordinances ostensibly designed to establish sanitation in the manufacture and sale of ice cream but really aimed, it was held, to suppress competition from counter ice cream freezers, to suppress their sale, and to prevent their operation.

Issued against the International
(Concluded on Page 2, Column 5)

**9 Models Included
In Hotpoint Line**

CLEVELAND—More than 3,000 refrigerator dealers attended the 50 spring sales conventions held in eastern and middle western states by the Hotpoint Refrigerator division of General Electric Co., at which nine new Hotpoint refrigerator models were shown, and advertising and sales campaigns for the year outlined.

Harry C. Mealey, manager of the Hotpoint division, and R. E. Sheahan were in charge of one series of meetings, while Howard Scaife, assistant division manager, and E. A. Anderson conducted the other series.

Increased from three to nine models this year, the Hotpoint line includes two small Thriftype units of the lift-lid class, and seven others, ranging in size from 4.4 to 15.4 cu. ft. capacity. On some models, the top panel, door, and bottom panel are of porcelain, with the remainder of Glyptal baked enamel.

With the exception of the two Thriftype models, the Hotpoint line
(Concluded on Page 13, Column 1)

**Refinements in
System Feature
Truscon Models****Cabinet Improvements Also
Made in '35 Series of
Four Models**

DETROIT—Truscon's 1935 line of household electric refrigerators is available in four models, ranging in size from 4.3 to 8.1 cu. ft. net storage capacity, and characterized by service features rather than by the addition of a number of gadgets.

Exteriors of the cabinets are finished in lacquer, with black Alchemik bases. Interiors are of one-piece, acid-resistant porcelain. Hardware is chromium-plated, and the door latches have been equipped with a special spring to insure a tight seal.

To increase efficiency of the freezing compartment, Truscon engineers have arranged freezing coils both above and below the freezing compartment. The refrigerant used in all models is methyl chloride.

Model T-435, smallest in the line is 54½ in. high, 23½ in. wide, and 23 in. deep. It has a net storage capacity of 4.3 cu. ft., and a shelf area of 8.2 sq. ft.

Model T-535 has overall dimensions of 58½ in. height, 26½ in. width, and 24 in. depth, a net storage capacity of 5.2 cu. ft., and a total shelf area of 11.7 sq. ft.

Model T-635 is 60 in. high, 30 in. wide, and 25½ in. deep. Its capacity is listed at 6.3 cu. ft., and its total shelf area at 13.6 sq. ft.

Largest model in the line, the Model T-835, has a height of 62½ in., a width of 32½ in., and a depth of 26 in. Its food storage capacity is 8.1 cu. ft. and its total shelf area, 15.6 sq. ft.

**Strike Fails to Delay
Crosley Deliveries**

CINCINNATI, April 1—Crosley refrigeration distributors have ample warehouse stocks, and deliveries will not be held up by the strike situation which caused the shutdown of the plants here last Wednesday, March 27, Crosley officials declared today.

Another conference was held Saturday in an attempt to settle the strike. The meeting of workers was attended by James Carey, national president of the Radio and Refrigeration Workers Union.

"We realize that many of our employees, even members of the union in question, desire to remain at work or return to work," said Lewis M. Crosley, vice president and general manager, when the plant was shut down last Wednesday because of violence. "We do not feel, however, great as the loss may be to them, that we can subject them to the risk which apparently will be involved."

Mr. Crosley called the strike "wholly unwarranted" and said it was called only because the company had refused to agree to union demands for recognition as sole bargaining agent for all employees.

**Crosley Icyball Will
Sell for \$59.95**

CINCINNATI—The new 1935 Crosley Icyball refrigerator, designed to provide the benefits of mechanical refrigeration where gas and electric lines are not available, has been announced by the Crosley Radio Corp.

Listing at \$59.95 f.o.b. Cincinnati, the unit's equipment includes stove, stabilizer, and tub.

The Icyball, available in only one model, has a net capacity of 3.5 cu. ft. and a shelf area of 4.2 sq. ft. Its one tray (inside the "cold" ball) makes 14 ice cubes. Interior finish is of 24-gauge galvanized iron, and exterior of white lacquer, with black trimmings.

Freezing unit consists of two metal balls joined together by a strong metal tube, and containing a liquid refrigerant, hermetically sealed. In preparing the unit for use, the cold ball is submerged in a tub of water while the hot ball is placed over a stove and "cooked" for about an hour
(Concluded on Page 13, Column 4)

Honored

J. A. HARLAN

**Harlan Heads Nema
Commercial Section**

DETROIT—J. A. Harlan, manager of the commercial division, Kelvinator Corp. was elected chairman of the Commercial Refrigeration Section of National Electrical Manufacturers Association at a meeting held last Tuesday, March 26, in Cleveland.

Tom Evans, president of Merchant & Evans Co., and chairman of the Refrigeration Division and Household Refrigeration Section of Nema, announced the appointment of Powell Crosley, Jr., president of Crosley Radio Corp., as a member of the Advisory Committee of the Refrigeration Division. This committee also acts as the Supervisory Agency for the administration of the NRA Supplementary Code which governs manufacturers of household electric refrigerators.

The Supervisory Agency, under the powers granted it by the Code, decided to exempt from the provisions of Article VI (Terms of Sale) all shipments to the territories of Hawaii and Alaska, the Panama Canal Zone, Puerto Rico, and the Virgin Islands.

This was done, says Haldeman Finnie, manager of the Refrigeration Division, because the length of time that shipments to some of these possessions are in transit makes it impossible for compliance with the terms of the Code without payment being made before the receipt of the merchandise.

The next meeting of the Refrigeration Division of Nema will be held at Hot Springs, Va., in May in connection with the Spring meeting of the entire Nema organization. The Refrigeration Division will meet on the morning of Tuesday, May 21, followed by a meeting of the Household Section, while the Commercial Section will meet on the morning of Wednesday, May 22.

**Sparton Traces
Sales of Bootleg
Models in Iowa****Unfranchised Store Buys
Spartons in Chicago,
Sells at Cut Prices**

By George F. Taubeneck

JACKSON, Mich.—Apparently taking a leaf from the Macy book of bootleg merchandising, Davidson's home furnishings store of Des Moines, Iowa, is now offering 1935 model Sparton refrigerators—obtained surreptitiously in Chicago—at prices from \$20 to \$40 off the regular list price, according to officials of the Sparks-Withington Co., manufacturer of Sparton refrigerators, radios, and automotive accessories. Davidson's store is not an authorized Sparton dealer.

Guy C. Core, advertising manager of the Sparks-Withington Co., first learned of these cut-price sales through advertisements in the Des Moines Register-Tribune last week, and proceeded at once to investigate. He found that all visible serial numbers had been effaced. The refrigerators were being sold without a manufacturer's guarantee.

Under an Iowa state law which provides that any person or corporation which defaces a manufacturer's serial number is guilty of a misdemeanor, Sparks-Withington is in a position to push prosecution of the offenders.

Through R. J. Faller of the United States Advertising Corp., who accompanied Mr. Core on the trip, the latter purchased one of these Sparton refrigerators. By means of a concealed serial number stamped into the compressor, he was able to trace the refrigerator back to Chicago, where it had been shipped to distributors Wakem & Whipple by the factory.

Wakem & Whipple had delivered the refrigerator to the Broadway Radio Sales Co., 4336 Broadway, Chicago. Inquiry at this dealership produced the information that this particular refrigerator, along with 11
(Concluded on Page 2, Column 1)

**Hadden Will Manage
Kelvinator in Canada**

DETROIT—C. W. Hadden has been appointed general manager of Kelvinator of Canada, Ltd., at London, Ont., succeeding Frank S. McNeal, who resigned early this year to take the position of general manager of Universal Cooler Corp.

Previous to joining the Kelvinator company in July, 1934, Mr. Hadden was general manager of Copeland Products, Inc. He was connected with the group which started the development of the original Copeland company.

**Prof. Kratz and Helmrich Describe
Summer Cooling Experiments**

By T. T. Quinn

DETROIT—Prof. Alonzo P. Kratz of the Engineering Experiment Station, University of Illinois, and George B. Helmrich of the Detroit Edison Co. told members of the Detroit sections of the A.S.H.&V.E. and A.S.R.E. about the experiments in summer cooling conducted in Urbana, Ill., and suburban Birmingham, Mich., at a joint meeting of the two groups Monday night in the Wardell hotel.

The meeting was devoted to summer cooling, and a round-table discussion followed the two lectures.

Prof. Kratz, whose work in summer cooling at the University of Illinois during the last three years has come in for a wide share of attention, illustrated his speech on tests made in the research residence with lantern slides.

His talk was confined largely to last summer's work, when mechanical refrigeration was used. Ice cooling equipment was used during the first two summers.

During the 1934 tests, a 2-ton mechanical refrigeration unit was used, supplemented at times by circu-

lation of outside air through the second story at night. Approximately one air change of outside air per hour was used for the purpose of ventilation during the period when artificial cooling was required.

The research residence was equipped with awnings at all east, south, and west windows, and the sun parlor isolated from the rest of the house. The entire third floor was regarded as an attic, and shut off from the rest of the house. Attic windows, however, were left open at all times for ventilation.

A forced-air heating system, already installed in the house, was used as the ductwork for the summer cooling experiments. All return ducts, with the exception of the central one containing the cooling coil, were blocked. The delivery ducts to the sun parlor and the third story were also blocked, and the dampers in the ducts to the first and second floors were adjusted to keep the proper balance between the cooling on these two floors.

The condensing unit consisted of a
(Concluded on Page 19, Column 1)

Newest Westinghouse Machine

B. C. Davison, commercial refrigeration sales engineer (left) and H. M. Wible, manager of commercial refrigeration sales for Westinghouse, look over some of the fine points on one of the new Westinghouse commercial refrigerating machines.

SPECIFICATIONS OF 562 COMMERCIAL CONDENSING UNITS THIS ISSUE

Sparton Traces Sale Of Bootleg Models

(Concluded from Page 1, Column 5)
other Spartons (five 465's, five D465's, and two D525's were in the lot) had been sold to "some gentlemen who wanted to install them in an apartment house in Sioux City, South Dakota."

Inasmuch as the Chicago dealer sold the 12 refrigerators at a profit, Sparton officials point out that Davidson's must be selling them at a loss.

Authorized Sparton dealer in Des Moines is Ginsberg's, a rival home furnishings store. Recently Ginsberg's ran a "Count the Cubes" puzzle contest, as a result of which some 14,000 persons were mailed checks for \$22.50—cashable only when applied to the purchase of a Sparton refrigerator. The contest ended March 20, after which the checks were mailed. Almost immediately thereafter Davidson's began advertising Sparton refrigerators at prices which would make the \$22.50 checks apparently worthless.

The Iowa statute under which the Sparks-Withington Co. may seek redress reads as follows:

13092-d1. Alteration of manufacturer's serial number. Any person or corporation removing from or altering, defacing, mutilating, concealing, covering or destroying the manufacturer's serial number or other distinguishing mark upon any machine or manufactured article for the purpose of concealing, destroying or misrepresenting the identity of such machine or manufactured article, or who sells or offers for sale, or who owns or has possession of any machine or manufactured article knowing that the manufacturer's serial number or other distinguishing number or identification mark has been removed, altered, defaced, mutilated, concealed, covered or destroyed with the purpose of concealing, destroying or misrepresenting the identity of such machine or manufactured article, shall be guilty

Guy Core Does Some Sleuthing



Sparton's Advertising Manager Guy Core, who tracked down the facts in the Des Moines "bootlegging" case reported in this issue, pounds out a copy of the Iowa statute on serial number effacement in his Jackson, Mich., office, while the editor practices with his camera.

of a misdemeanor.

13092-d2. Presumption of unlawful alteration. It shall be presumed that such serial number, or distinguishing number or identification mark, or portion thereof, was unlawfully removed, altered, defaced, mutilated, concealed, covered or destroyed by said person in violation of the provisions of section 13092-d1, if it shall appear that said person has had possession or control of any such machine, musical instrument or other goods, wares or merchandise with such serial number or distinguishing number or identification mark, or portion thereof removed, altered, defaced, mutilated, concealed, covered or destroyed, but such presumption shall not be conclusive.

Leo J. Lucier, chairman of the vigilance committee, Advertising Club of Des Moines, has also informed Mr. Core that in offering these "bootleg" Spartons for sale at cut prices, without a manufacturer's guarantee, and with serial numbers missing, Davidson's violated three of the Standards of Practice of that organization.

"A letter was written to the advertising manager of the *Register and Tribune* informing them to take no more advertising in which these violations take place," writes Mr. Lucier.

The three Standards of Practice in question are as follows:

Standard B-1. Every person, firm or corporation advertising for sale at reduced prices any radio or radios or refrigerator or refrigerators must state in such advertisement the number of such make, set, style or model of said radio or radios and/or refrigerator or refrigerators, unless the person, firm or corporation advertising said radio or radios and/or refrigerator or refrigerators has on hand at the place of business where it advertises such radio or radios and/or refrigerator or refrigerators to be available a total supply of eleven (11) of such make, set, style or model advertised.

Standard B-2. Any person, firm or corporation advertising for sale any radio or radios and/or refrigerator or refrigerators which do not bear a manufacturer's serial number or other distinguishing mark must state in said advertisement that the radio or radios and/or refrigerator or refrigerators advertised do not carry such manufacturer's serial number or other distinguishing mark.

Standard B-3. Every person, firm or corporation advertising an article of merchandise for sale in which advertisement the word guarantee is used must state in said advertisement whether the guarantee is that of the manufacturer, distributor or vendor of said merchandise.

G-E Sales Forces Strive for Automobiles And Other Prizes in Spring Sweepstakes

CLEVELAND, April 1—They're Off! Refrigerania Sweepstakes, new spring sales campaign of the specialty appliance sales department of General Electric Co. officially opened in the northern states Monday morning. The 1935 campaign was launched in the southern states March 18.

To open the campaign in the north a "sunrise" breakfast was staged at national sales headquarters at Nela Park here. Every employee of the sales department was on hand at 7:30 o'clock.

Simultaneously, distributors in 60 leading cities throughout the country held similar breakfasts. Following the breakfast here, employees gathered in the General Electric Institute to inaugurate the contest and to hear how they could help in boosting sales during the campaign.

A feature of the meeting here was a "race" staged by officials of the Cleveland staff. "Horses" were of the hobby variety. They were "Dealer Up," entered by A. A. Uhalt of the dealer division; "Commer," entered by W. E. Landmesser, commercial division; "Full House," entered by G. D. Kobick, apartment house division; "Balancia," entered by W. D. Galpin, retail division; "Utily," entered by H. H. Bosworth, utility division; "Dishway," entered by Carl Snyder, dishwasher division; "Workaway," entered by R. W. Shenton, workshop division; "Ramrod," entered by J. R. Poteat, range division; "Snow White," entered by J. M. Wicht, laundry equipment; "Clean Up," entered by A. L. Atkinson, vacuum cleaners.

Snyder's 'Dishway' Wins

Snyder on "Dishway" won the "race" across the Institute's stage, and was awarded a floral horse-shoe.

An elaborate system of awards for winners of the campaign has been worked out by Jean DeJen, manager of General Electric's campaign division. A large number of awards have been set up, making possible the presentation of awards to an enlarged list of sales winners.

Those who lose by "a nose" will claim other trophies in recognition of their accomplishment. The awards will be in proportion to the sales job done by each salesman, retailer, sales department, and distributor. It is expected that several thousand salesmen, supervisors, dealers, utility, district division and merchandise managers will be recognized.

In addition, the retail, wholesale, commercial, and apartment house sales managers employed by distributors will be rewarded. Special recognition, too, will be given to distributor principals. Water cooler specialists will have their own competition and awards.

Sales of the following appliances count in the campaign:

For commercial salesmen: Commercial refrigerators, commercial equipment, Russ equipment.

For retail salesmen: Domestic refrigerators, ranges, dishwashers, laundry equipment, vacuum cleaners, workshops.

Rules Regarding Sales

Only new retail appliances sold, delivered, and installed during the period of the contest count against quota. New commercial equipment and appliances which can be delivered and installed within four weeks after the conclusion of the campaign, providing a substantial down payment has been made, may be counted. Commercial sales made prior to the opening of the campaign, but delivered and installed during the period of the campaign may not be counted against quota.

With regard to entries in the races in both commercial and retail fields each salesman plays two horses against the field as follows: First horse—entered by distributor and representing the sales progress of the distributorship as a whole. Second horse—entered by sales manager and representing the sales progress of the department as a whole.

In the distributor's race, the horse entered by the distributor will pay the salesman and supervisor six credits for each 1 per cent of quota realized by the distributor. In the weekly distributor's races the distributor will pay all salesmen as follows: win—100 credits; place—75 credits; and show—50 credits.

In the retail department race, the horse entered by the retail sales manager will pay the retail salesman and supervisor one credit for each credit earned by the retail department for a balanced sales job on all appliances. Total credits for 100 per cent balanced job on refrigerators, ranges, dishwashers, laundry equipment, cleaners, and workshops is 600 credits.

The horse entered by the commercial sales manager will pay the commercial salesmen and supervisors six credits for each 1 per cent of quota realization by the commercial department.

Salesmen will receive one credit for every dollar in sales (f.o.b. factory list) and these credits may be exchanged for prizes listed in the

Awards for Thoroughbreds.

Supervisors will receive one credit for each dollar in sales based on the average total sales per man under him, including himself.

Pooling of credits or sales will disqualify all parties involved for prizes and honors in the campaign.

Sweepstakes prize plan is as follows: A salesman, commercial or retail, must sell \$2,500 worth of appliances and equipment. For every \$500 in sales over \$2,500, the salesman will receive an additional Sweepstakes ticket, thus giving him more chance to win one of the big prizes.

The 10 grand prizes are: first, De Luxe Ford Four-Door sedan; second, De Luxe Ford Tudor sedan; third, model M-125 G-E radio; fourth, model M-106 G-E radio; fifth, model M-86 G-E radio; and five complete "Beau Brummell" outfits.

Prizes for Sales Managers

Separate Sweepstakes prizes for sales managers, employed by the distributor will be given. Retail sales managers will receive one ticket good for one chance on the sales managers sweepstakes after having earned 600 credits for a balanced sales job in the campaign. For every 60 credits earned over the 600 credits, the retail sales manager will receive an additional sweepstakes ticket.

The sweepstakes prizes for sales managers will consist of credits exchangeable for merchandise prizes to be selected from the prizes listed in the award for thoroughbreds. Amounts of credits for retail sales managers are as follows: first, 35,000 credits; second, 30,000 credits; third, 25,000 credits; fourth, 20,000 credits; fifth, 15,000 credits; sixth, 10,000 credits; and seventh, 7,500 credits.

Every commercial sales manager will receive one ticket good for one chance in the sales managers' sweepstakes prizes, who attains 100 per cent of his quota. For every 10 per cent over quota, an additional sweepstakes ticket will be given. Prizes are the same as for retail sales managers.

In the sales managers' competition, managers will be divided into three groups, depending upon the size of their quotas. The five leaders in each of these groups will be awarded the following credits toward prizes: First, 30,000 credits; second, 20,000 credits; third, 15,000 credits; fourth, 10,000 credits; fifth, 7,500 credits.

Judges of Contest

Judges who will supervise the national races, as well as the races of the division managers, are P. B. Zimmerman, G. J. Chapman, A. M. Sweeney, and Ralph Cameron.

To keep the field informed of each week's standing in the Sweepstakes, a weekly newspaper, "The Thoroughbred," is published by the campaign headquarters.

Winning "entries" in the first week's distributor race were: Group 1, Tennessee Appliances, Inc.; Group 2, Perry-Browne, Inc.; Group 3, Albert Ahrens Co.; Group 4, Valley Electric Supply Co.

Ice Cream Companies Cited for Attacking Counter Freezers

(Concluded from Page 1, Column 2)

Association of Ice Cream Manufacturers, the complaint names the National Dairy Products Co. of New York City, the Borden Co. of New York, Golden State Co., Ltd., of San Francisco, Midwest Dairy Products Corp., Duquoin, Ill., French-Bauer, Inc., Cincinnati, and the Southwest Utility Dairy Products Co. of Oklahoma City as respondent members, and describes them as representative of 500 member wholesale manufacturers throughout the country.

The association and respondent manufacturers will appear May 3 to show cause at a hearing why the FTC should not issue a cease and desist order.

The respondents are also charged with distributing bulletins and pamphlets defamatory of the operation of counter freezers; use of fraudulent letters from alleged dissatisfied buyers of counter freezers, criticizing and disparaging their use; boycotting vendors and distributors; intimidation and unfair propaganda among customers of counter freezer sellers, and offering to buy freezers from prospective purchasers at exorbitant prices in order to stifle competition.

The complaint points out that the entire membership of the association is not specifically named, owing to its far-flung and changing membership. The members named as respondents are believed by the FTC to be representative, however.

In connection with the complaint, a statement was issued by Bank & Pollard, counsel for the Mills Novelty Co., a manufacturer of counter freezers, which set forth that Charles R. Pollard of the firm had drawn the FTC's attention to the activities complained of.



EFFICIENCY requires FACILITIES

To produce Copeland refrigeration units, either Commercial or Domestic, that are efficient, durable, economical and good-looking, requires the perfection of modern facilities for mass production in addition to highly trained scientific, executive and manufacturing personnel.

Housed in the mammoth factory pictured above, and co-ordinated in a manufacturing plan which guarantees superb production, are machine tools, instruments of precision, testing equipment, engineering and chemical laboratories, of the most modern design, all a part of the facilities responsible for Copeland excellence. In Copeland's case, Efficiency is not an accident.

Throughout the manufacture of every Copeland component, a rigid inspection system insures accuracy within .0002 in., resulting in 100% performance of finished units and this doctrine of accuracy comprehends and embraces all operations. We firmly believe that the satisfaction experienced from Copeland units in service is directly traceable to our unrelenting insistence on a manufacturing standard which excuses no deviations.

Purchasers of Copeland equipment are assured that no plant in the industry is better equipped with facilities, personnel and manufacturing experience and for these reasons an investment in Copeland products is in the best interest of the buyer.

Copeland distributors enjoy the benefits of a year-round business, due to the complete character of the line. We invite applications for territory in districts where we are not at present represented. Write for details today.

COPELAND REFRIGERATION CORPORATION

Manufacturing a complete line of Household and Commercial Refrigeration

Holden Avenue at Lincoln

Detroit, Mich.

Copeland

DEPENDABLE ELECTRIC REFRIGERATION

ONLY CROSLEY DEALERS CAN PROFIT by

This much more in a SHELVADOR

EXCLUSIVELY IN CROSLEY ELECTRIC REFRIGERATORS

As poetry, not so hot. But as a selling *idea* there's a world of meaning and of profit in the simple rhyme—"This much more in a Shelvador." To this let us add—"and twice as easy to find."

There is no argument so convincing as a *record*. And the record shows that the Shelvador feature has been most productive single sales factor in recent electric refrigeration history. During 1934 the Crosley Shelvador Electric Refrigerator showed the greatest sales growth in the entire field. And 1935 will far exceed 1934. That's not guess-work. It's a certainty, already partially established. During January Shelvador sales were 360% ahead of the same month in 1934. Gains of 200% and more are common. Some dealers report a 1000% increase.

The Shelvador—with its greatly increased usable space—has lifted the Crosley Electric Refrigerator out of competition. Crosley quality—established and proved by hundreds of thousands of satisfied users—has received national recognition. Crosley value is even more aptly illustrated in these models than ever before.

As for you—if you are not now selling the Crosley Line—let the success of others be your guide. The more you look into this matter, the more you'll find that you cannot afford NOT to handle Crosley.

All 1935 models have the Shelvador feature, flat bar shelves, no-stop defrosting control, new-designed chromium-plated hardware, porcelain interior. Shelvador and Tri-Shelvador models have in addition: Automatic interior light, ventilated front. All Tri-Shelvador models add to these features: Shelvatray, Shelvabasket, Stora-bin and self-closing ice-tray chamber door.

● Crosley Tri-Shelvador Adds 3 Exclusive Features to Famous Shelvador

The Tri-Shelvador has all the features of the Shelvador, with the following added features:

- 1—SHELVATRAY. Handy shelf in door that drops to horizontal position. Place articles on Shelvatray and carry them (Shelvatray and all) to table, range, or cabinet. Saves time and steps.
- 2—SHELVABASKET. A non-refrigerated basket on bottom of door for greens, carrots, cabbages and the like. An exclusive feature.
- 3—STORABIN. A non-refrigerated bin in bottom part of cabinet for potatoes, onions, and other bulk items. Found only in Tri-Shelvador.

In addition: Self-closing stainless steel door to freezing chamber in all Tri-Shelvador Models.



2 TABLE SHELVADORS

TABLE SHELVADOR

FR-20—2 cu. ft. NET Capacity. Semi-hermetic Rotary Compressor. Dimensions: 36" high, 23 1/2" wide, 25" deep. (Shown at left) .. **\$79.50**

TABLE SHELVADOR

FR-30—3.1 cu. ft. NET Capacity. Rotary Compressor. Same dimensions as FR-20..... **\$94.50**



4 SHELVADOR MODELS

SHELVADOR MODEL FA-40

4.09 cu. ft. NET Capacity. 8.6 sq. ft. shelf area. 2 ice trays—42 cubes. Dimensions: 52 3/4" high, 23 1/2" wide, 25 1/2" deep..... **\$112.50**

SHELVADOR MODEL FA-50

5 cu. ft. NET Capacity. 11.3 sq. ft. shelf area. 2 ice trays—42 cubes—one double-depth tray. Dimensions: 56 1/4" high, 25 1/2" wide, 24 1/2" deep. (Shown at left) .. **\$129.50**

SHELVADOR MODEL FA-60

6 cu. ft. NET Capacity. 13.5 sq. ft. shelf area. 3 ice trays—63 cubes—one double-depth tray. Dimensions: 56 1/4" high, 30 3/4" wide, 25 1/2" deep..... **\$149.50**

SHELVADOR MODEL FA-70

7.08 cu. ft. NET Capacity. 14.9 sq. ft. shelf area. 4 ice trays—84 cubes—one double-depth tray. Dimensions: 57 1/2" high, 32 3/4" wide, 25 1/2" deep..... **\$169.50**

3 TRI-SHELVADOR MODELS

Models FA-50, FA-60, FA-70, and all Tri-Shelvador Models also available with porcelain exterior at slight extra cost.

TRI-SHELVADOR MODEL F-43

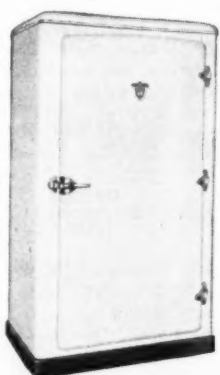
4.3 cu. ft. NET Capacity. 9.15 sq. ft. shelf area. 2 ice trays—42 cubes—one double-depth tray. Dimensions: 56 1/4" high, 23 1/2" wide, 23 1/2" deep..... **\$139.50**

TRI-SHELVADOR MODEL F-55

5.51 cu. ft. NET Capacity. 11.6 sq. ft. shelf area. 3 ice trays—63 cubes—one double-depth tray. Dimensions: 57 1/2" high, 29" wide, 24 1/2" deep..... **\$164.50**

TRI-SHELVADOR MODEL F-70

7.08 cu. ft. NET Capacity. 14.9 sq. ft. shelf area. 4 ice trays—84 cubes—one double-depth tray. Dimensions: 58 3/4" high, 32 3/4" wide, 25 1/2" deep. (Shown at left) .. **\$189.50**



THE CROSLEY RADIO CORPORATION - - CINCINNATI

POWEL CROSLEY, Jr., President

(Pioneer Manufacturers of Radio Receiving Sets)

Prices in Texas, Florida and in states west of the Rockies, slightly higher.

Home of WLW—the world's most powerful broadcasting station.

ALL PRICES INCLUDE DELIVERY..INSTALLATION..ONE YEAR FREE SERVICE

SPECIFICATIONS OF COMMERCIAL MACHINES COMPILED BY ELECTRIC REFRIGERATION NEWS

Specifications of 562 commercial condensing units are presented on pages 4, 6, 8, 10, 14, 16, 18, and 20 of this issue.

Capacities of the units, unless otherwise specified, are given in B.t.u.'s per hour under the following conditions approved by the Refrigeration Division of Nema, American Society of Refrigerating Engineers, and the Refrigerating Machinery Association:

Exceptions to this method of rating are noted as follows:

1. A mechanical condensing unit is a specific refrigerating machine combination for a given refrigerant consisting of a motor driven compressor for operation at a given speed, a condenser, a liquid receiver, and the regularly furnished accessories.

2. The power input rating of an electrically driven mechanical condensing unit is its total power input in watts when the unit is operated under the conditions specified in paragraph 4.

3. The capacity of a mechanical condensing unit is the refrigerating effect in B.t.u./hr. produced by the

change in total heat content between the liquid refrigerant leaving the condensing unit per hour and the total heat content of the vapor refrigerant entering the condensing unit per hour under the conditions defined in paragraph 4.

4. The capacity rating of a mechanical condensing unit shall be expressed in B.t.u./hr. and/or tons, each of 12,000 B.t.u./hr., and shall be measured under conditions defined as follows:

(a) The unit ratings shall be divided into four standard groups based on refrigerant vapor and cooling water temperatures as follows:

Group No.	Temperatures in Degrees Fahrenheit			
	Saturated Vapor	Entering Compressor	In-coming	Out-going
I	minus 10	65	75	85
II	plus 5	65	75	90
III	plus 20	65	75	90
IV	plus 40	65	75	95

(b) The saturated vapor tempera-

ture shall be determined by the suction pressure as measured at the suction inlet connection to the condensing unit.

(c) The standard ambient temperature for air cooled and/or water cooled condensing units shall be 90° F.

5. The performance factor of a mechanical condensing unit is the ratio of its capacity to its energy input, expressed in B.t.u./watt hr. and/or tons, each of 12,000 B.t.u./hr., per kilowatt.

6. The cooling water consumption of a mechanical condensing unit is the total number of gallons per hour required under the conditions specified in paragraph 4.

Frigidaire, Frick, and Auburn units are rated in lbs. I.M.E. per 24 hours with a suction gas pressure corresponding to a temperature of 15° F. measured in the crankcase, and discharge pressures corresponding to a 90° F. room for air-cooled units and 80° F. water for water-cooled units.

Capacities for Reliance units are given with 95° F. room temperature

for air-cooled models, and 76° F. inlet water for water-cooled models.

Nash unit capacities are given in I.M.E. per 24 hours at 11.2 lbs. suction pressure measured at the crankcase with 90° F. room temperature or 70° F. inlet water temperature.

Chieftain unit capacities are given in I.M.E. per 24 hours instead of B.t.u.'s per hour.

Carrier Corp., Curtis Refrigerating Machine Co., and The Starr Co. gave notice that they have not completed tests are necessary to obtain capacities under the new method of rating, but indicated that they would forward their data when the tests are completed.

Index of specifications follows:

Auburn Refrigeration Corp.	16
Brunner Mfg. Co.	4
Commercial Refrigerator Mfg. Co.	2
Copeland Refrigeration Corp.	10
Deissler Machine Co.	16
De La Vergne Engine Co.	20
Frick Co.	16

Frigidaire Corp.	6
General Electric Co.	4
General Refrigeration Sales Co.	8
Gibson Elec. Refrigerator Corp.	14
Hardy Mfg. Co., Inc.	18
Kellogg Mfg. Co.	16
Kelvinator Corp.	6
Merchant & Evans Co.	8
Nash Refrigeration Co., Inc.	16
Norge Corp.	10
O'Keefe & Merritt Co.	20
Parker Mfg. Co.	18
Phoenix Ice Machine Co.	18
Reliance Refrigerating Mach. Co.	14
Servel, Inc.	8
Tecumseh Products Co.	8
Thermal Units Mfg. Co.	18
Universal Cooler Corp.	10
Westinghouse Elec. & Mfg. Co.	6
Williams Oil-O-Matic Heating Corp.	18
Zerozone Refrigeration Co.	14

General Electric

General Electric Co.
Nela Park, Cleveland, Ohio

Compressor—Balanced bellows shaft seal, stationary guide. Cylinder head cooled by the refrigerant. Splash-type lubricating system for all except

models CM-9L and 10L which have pressure and splash. Oil level measured by measuring rod on all but models CM-9L and CM-10L on which a sight glass is used.

Condenser—Air-cooled models: fin coil. Water-cooled models: double-tube counter-flow for all but "L"

models which have shell-and-tube condenser. Air-cooled condensers are located in the rear, water-cooled in the center and shell-and-tube, under the frame.

Liquid Receiver—Horizontal liquid receiver on all but models CM-3A and 3D which have vertical type, and

models using shell-and-tube condenser, with which liquid receiver is combined. All models have fusible safety plug and refrigerant filter.

Materials Used—Cylinder block: semi-steel. Condenser tube: copper, with galvanized steel in shell-and-tube type. Condenser shell: steel.

Controls—Penn back pressure control. All but models CM-3A, 3D, 4A, and 4D have high pressure cutout. Thermal and head pressure overload cutout. Condensing water flow controlled by head pressure. Penn water regulating valve.

Valves—Ring-in-head intake valve, reed discharge valve.

Model No.	Refrigeration				Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Refrigerant Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches		
	40° R.p.m.	B.t.u.	20° R.p.m.	B.t.u.	5° R.p.m.	B.t.u.	-10° R.p.m.	B.t.u.												Inches		
CM-3A	315	1,520	450	1,370	450	940	450	590	1/2	2	1 1/2 x 1 3/4	5	3 lbs.	SO ₂	Air	Open	Reciprocating	Belt	18 oz.	19 1/2	x 17	x 16 1/2
CM-3A	375	1,750	...	...	560	1,130	560	720	1/2	2	1 1/2 x 1 3/4	5	3 lbs.	SO ₂	Air	Open	Reciprocating	Belt	18 oz.	19 1/2	x 17	x 16 1/2
CM-3D	530	2,420	650	1,940	765	1,490	765	940	1/2	2	1 1/2 x 1 3/4	5	3 lbs.	SO ₂	Air	Open	Reciprocating	Belt	18 oz.	19 1/2	x 17	x 16 1/2
CM-4A	...	...	450	2,510	510	1,790	510	1,090	1/2	2	1 3/4 x 1 3/4	6	4 lbs.	SO ₂	Air	Open	Reciprocating	Belt	3 1/4 pts.	23 1/4	x 16 1/2	x 20 3/4
CM-4A	510	4,420	690	3,450	690	2,250	690	1,420	1/2	2	1 3/4 x 1 3/4	6	4 lbs.	SO ₂	Air	Open	Reciprocating	Belt	3 1/4 pts.	23 1/4	x 17 1/2	x 20 3/4
CM-4A	690	5,430	...	...	...	...	...	...	3/4	2	1 3/4 x 1 3/4	6	4 lbs.	SO ₂	Air	Open	Reciprocating	Belt	3 1/4 pts.	23 1/4	x 18 1/2	x 20 3/4
CM-5A	...	...	450	5,170	530	3,870	530	2,240	3/4	2	2 x 2 1/2	12	7 1/2 lbs.	SO ₂	Air	Open	Reciprocating	Belt	5 1/4 pts.	31	x 20 3/4	x 24 1/4
CM-5A	...	...	530	6,050	...	...	...	...	1	2	2 x 2 1/2	12	7 1/2 lbs.	SO ₂	Air	Open	Reciprocating	Belt	5 1/4 pts.	31	x 23	x 24 1/2
CM-5D	...	...	560	6,700	620	4,530	620	2,670	1	2	2 x 2 1/2	21	14 lbs.	SO ₂	Air	Open	Reciprocating	Belt	6 1/4 pts.	36	x 24 1/4	x 29 1/2
CM-5D	620	11,080	620	7,000	...	...	...	...	1 1/2	2	2 x 2 1/2	12	14 lbs.	SO ₂	Air	Open	Reciprocating	Belt	6 1/4 pts.	36	x 25 1/4	x 29 1/2
CM-6A	...	...	450	11,000	510	8,270	510	4,900	1 1/2	2	2 1/2 x 3 1/2	21	14 lbs.	SO ₂	Air	Open	Reciprocating	Belt	8 1/4 pts.	36	x 25 1/4	x 30 3/4
CM-6A	510	19,800	510	1,234	...	...	...	...	2	2	2 1/2 x 3 1/2	21	14 lbs.	SO ₂	Air	Open	Reciprocating	Belt	8 1/4 pts.	36	x 26	x 30 3/4
CM-4W	450	4,550	510	2,970	590	2,210	...	...	1/2	2	1 3/4 x 1 3/4	6	4 lbs.	SO ₂	Water	Open	Reciprocating	Belt	3 1/4 pts.	29	x 16 1/2	x 21 3/4
CM-4W	590	5,680	690	3,840	690	2,360	690	1,450	1/2	2	1 3/4 x 1 3/4	6	4 lbs.	SO ₂	Water	Open	Reciprocating	Belt	3 1/4 pts.	29	x 16 1/2	x 21 3/4
CM-4W	690	6,300	...	...	...	...	...	...	3/4	2	1 3/4 x 1 3/4	6	4 lbs.	SO ₂	Water	Open	Reciprocating	Belt	3 1/4 pts.	29	x 16 1/2	x 21 3/4
CM-5W	450	9,280	510	6,220	590	4,480	590	2,620	3/4	2	2 x 2 1/2	12	7 1/2 lbs.	SO ₂	Water	Open	Reciprocating	Belt	5 1/4 pts.	35 1/4	x 16 1/2	x 24 1/4
CM-5W	590	11,320	590	7,000	...	...	...	...	1	2	2 x 2 1/2	12	7 1/2 lbs.	SO ₂	Water	Open	Reciprocating	Belt	5 1/4 pts.	35 1/4	x 18 1/2	x 24 1/4
CM-6W	275	13,350	375	10,400	375	6,770	375	4,090	1	2	2 1/2 x 3 1/2	21	14 lbs.	SO ₂	Water	Open	Reciprocating	Belt	8 1/4 pts.	39	x 18 1/2	x 30 3/4
CM-6W	425	19,800	475	13,400	560	9,770	560	5,560	1 1/2	2	2 1/2 x 3 1/2	21	14 lbs.	SO ₂	Water	Open	Reciprocating	Belt	8 1/4 pts.	39	x 20 1/4	x 30 3/4
CM-6W	560	25,600	560	15,700	...	...	...	...	2	2	2 1/2 x 3 1/2	21	14 lbs.	SO ₂	Water	Open	Reciprocating	Belt	8 1/4 pts.	39	x 21	x 30 3/4
CM-3A	...	...	315	1,650	375	1,340	375	890	1/2	2	1 1/2 x 1 3/4	5	3 lbs.	Freon	Air	Open	Reciprocating	Belt	18 oz.	19 1/2	x 17	x 16 1/2
CM-3D	375	2,820	400	2,060	450	1,670	560	1,290	1/2	2	1 1/2 x 1 3/4	5	3 lbs.	Freon	Air	Open	Reciprocating	Belt	18 oz.	19 1/2	x 17	x 16 1/2
CM-4A	...	...	400	3,780	450	3,040	450	2,060	1/2	2	1 3/4 x 1 3/4	6	4 lbs.	Freon	Air	Open	Reciprocating	Belt	3 1/4 pts.	23 1/4	x 17 1/2	x 20 3/4
CM-4A	400	5,150	450	4,030	...	...	...	...	3/4	2	1 3/4 x 1 3/4	6	4 lbs.	Freon	Air	Open	Reciprocating	Belt	3 1/4 pts.	23 1/4	x 18 1/2	x 20 3/4
CM-4D	...	...	620	5,290	620	3,920	620	2,770	3/4	2	1 3/4 x 1 3/4	12	7 1/2 lbs.	Freon	Air	Open	Reciprocating	Belt	4 1/4 pts.	31	x 20 3/4	x 23 1/4
CM-4D	620	7,520	690	5,890	690	4,230	690	2,950	1	2	1 3/4 x 1 3/4	12	7 1/2 lbs.	Freon	Air	Open	Reciprocating	Belt	4 1/4 pts.	31	x 23	x 23 1/4
CM-5D	...	...	415	7,960	450	6,300	450	4,480	1	2	2 x 2 1/2	21	14 lbs.	Freon	Air	Open	Reciprocating	Belt	6 1/4 pts.	36	x 24 1/4	x 29 1/2
CM-5D	450	12,350	510	9,600	510	7,200	510	4,960	1 1/2	2	2 x 2 1/2	21	14 lbs.	Freon	Air	Open	Reciprocating	Belt	6 1/4 pts.	36	x 25 1/4	x 29 1/2
CM-6A	...	...	275	11,200	300	9,030	300	6,370	1 1/2	2	2 1/2 x 3 1/2	21	1 lb.	Freon	Air	Open	Reciprocating	Belt	8 1/4 pts.	36	x 25 1/4	x 30 3/4
CM-6A	300	16,300	375	14,200	400	11,350	400	8,260	2	2	2 1/2 x 3 1/2	21	1 lb.	Freon	Air	Open	Reciprocating	Belt	8 1/4 pts.	36	x 26	x 30 3/4
CMF-4W	400	6,340	450	4,720	450	3,280	450	2,180	1/2	2	1 3/4 x 1 3/4	6	4 lbs.	Freon	Water	Open	Reciprocating	Belt	3 1/4 pts.	29	x 16 1/2	x 21 3/4
CMF-4W	...	...	620	6,220	690	4,680	690	2,920	3/4	2	1 3/4 x 1 3/4	6	4 lbs.	Freon	Water	Open	Reciprocating	Belt	3 1/4 pts.	29	x 16 1/2	x 21 3/4
CMF-5S	385	12,720	435	9,750	475	7,380	475	4,900	1	2	2 x 2 1/2	21	14 lbs.	Freon	Water	Open	Reciprocating	Belt	6 1/4 pts.	39	x 18 1/2	x 29 1/2
CMF-5S	475	15,650	475	10,350	...	...	...	...	1 1/2	2	2 x 2 1/2	21	14 lbs.	Freon	Water	Open	Reciprocating	Belt	6 1/4 pts.	39	x 20 1/4	x 29 1/2
CMF-6W	275	19,200	325	15,270	325	10,780	325	7,130	1 1/2	2	2 1/2 x 3 1/2	21	14 lbs.	Freon	Water	Open	Reciprocating	Belt	6 1/4 pts.	39	x 20 1/4	x 30 3/4
CMF-6W	325	22,800	400	18,850	450	14,500	450	9,550	2	2	2 1/2 x 3 1/2	21	1 lb.	Freon	Water	Open	Reciprocating	Belt	8 1/4 pts.	39	x 21	x 30 3/4
CMF-8W	240	32,700	300	27,500	325	20,200	325	13,600	3	4	2 1/2 x 3 1/2	35	2 lbs.	Freon	Water	Open	Reciprocating	Belt	8 1/4 pts.	48	x 24	x 30 3/4
CMF-8S	400	52,500	490	41,600	530	31,500	530	20,700	5	4	2 1/2 x 3 1/2	35	2 lbs.	Freon	Water	Open	Reciprocating	Belt	13 pts.	48	x 26 1/2	x 30 3/4
CMF-8L	490	68,000	490	45,000	490	32,900	490	22,000	5	4	2 1/2 x 3 1/2	70	2 lbs.	Freon	Water	Open	Reciprocating	Belt	12 pts.	...	...	...
CMF-9L	515	111,500	515	74,000	515	52,000	515	33,000	7 1/2	4	3 1/4 x 3 1/4	140	2 lbs.	Freon	Water	Open	Reciprocating	Belt	11 pts.	75	x 30 1/4	x 40 1/4
CMF-9L	625	135,000	625	69,000	625	62,500	625	40,000	10	4	3 1/4 x 3 1/4	125	3 lbs.	Freon	Water	Open	Reciprocating	Belt	11 pts.	75	x 33 3/4	x 40 1/4
CMF-10L	500	185,000	500	122,000	...	...	...	...	15	4	4 x 4	240	3 lbs.	Freon	Water	Open	Reciprocating	Belt	16 pts.	81 1/4	x 36 1/2	x 46
CMF-10L	650	255,000	650	167,000	...	...	...	...	20	4	4 x 4	200	3 lbs.	Freon	Water	Open	Reciprocating	Belt	16 pts.	82 1/4	x 39 1/2	x 47

**Such Spectacular Values
as these 3 typical 1935 Grunows
plus exclusive
Super Safe Carrene
are keeping**

Grunow

at the head of the parade

Model 60S

A big family-size Grunow, almost 6 cu. ft. capacity, lists at \$155 f.o.b. factory, tax paid.

Model 67D

A spectacular value of almost 7 cu. ft. capacity, lists at \$200 f.o.b. factory, tax paid.

Model 82D

An oversize Grunow for large families, 8.2 net cu. ft. capacity, lists at \$230 f.o.b. factory, tax paid.

Other Grunows of super quality at equally low list prices to suit every family's need.

FLASH ! ! !

Grunow refrigerators are advertised consistently every other week in full page space in the *Saturday Evening Post*

GENERAL HOUSEHOLD UTILITIES CO., 2650 North Crawford Ave., CHICAGO

Westinghouse

Westinghouse Electric & Mfg. Co.
Mansfield, Ohio.

Compressor—Balanced sylphon seal on open-type units. Cylinder head

cooled by air. Splash-type lubricating system. Oil level measured by sight gauge. Special compressor oil.

Controls—Make and type optional. All water-cooled models have high pressure cutout. Type of overload cutout: Spencer disc thermostat on

sealed units; automatic reset on starters with open units. Condensing water flow controlled by regulating valve. Penn water regulating valve.

Valves—Type of intake valves: disc on open type, flapper on sealed units. Type of discharge valves: poppet on

open type, flapper on sealed units.

Condenser—Air-cooled models: forced-draft fin tube. Water-cooled: shell and coil.

Materials Used—Cylinder block: cast semi-steel. Pistons: cast iron and

tool steel. Condenser tubing: copper. Condenser shell: fabricated welded construction.

Liquid Receiver—Horizontal type. All models have fusible safety plug and refrigerant filter.

Model No.	Refrigeration		Capacity		Motor		No. of Cyl.	Bore & Stroke	Pump Down Capac.	Refrigerant	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches
	40°	20°	5°	10°	Hp.	Vol.											
ASA-12H	...	1,725	720	1,725	450	1,725	261	1 x 7/8	4	2 1/2 lbs.	SO ₂	Air	Hermetic	Reciprocating	Direct	2 pts.	18 1/2 x 18 1/2 x 11 1/2
ASB-25H	...	1,725	1,365	1,725	885	1,725	525	1 x 7/8	8	4 lbs.	SO ₂	Air	Hermetic	Reciprocating	Direct	2 1/2 pts.	23 1/2 x 18 1/2 x 17
AFA-16H	...	1,725	1,065	1,725	780	1,725	510	1 x 7/8	4	2 1/2 lbs.	Freon	Air	Hermetic	Reciprocating	Direct	2 pts.	18 1/2 x 18 1/2 x 11 1/2
AFB-33H	...	1,725	2,290	1,725	1,460	1,725	1,150	1 x 7/8	6	4 lbs.	Freon	Air	Hermetic	Reciprocating	Direct	2 1/2 pts.	24 x 18 1/2 x 11 1/2
ASC-50H	...	1,725	2,550	1,725	1,665	1,725	1,005	1 x 7/8	15	8 lbs.	SO ₂	Air	Hermetic	Reciprocating	Direct	5 1/2 pts.	30 x 18 1/2 x 24 1/2
WSC-50H	...	1,725	2,970	1,725	1,875	1,725	1,095	1 x 7/8	20	8 lbs.	SO ₂	Water	Hermetic	Reciprocating	Direct	5 1/2 pts.	30 x 18 1/2 x 27 1/2
WFC-75H	...	1,725	5,076	1,725	3,526	1,725	2,196	1 x 7/8	15	8 lbs.	Freon	Water	Hermetic	Reciprocating	Direct	5 1/2 pts.	30 x 18 1/2 x 20
AFJ-100L	...	...	...	480	5,300	480	3,390	1	2	8 lbs.	Freon	Air	Open	Reciprocating	V-Belt	3 pts.	32 x 26 1/2 x 26 1/2
AFJ-100S	...	410	6,600	410	4,580	410	3,000	1	2	8 lbs.	Freon	Air	Open	Reciprocating	V-Belt	3 pts.	32 x 26 1/2 x 26 1/2
AFJ-100H	320	7,950	320	5,610	...	...	...	1	2	8 lbs.	Freon	Air	Open	Reciprocating	V-Belt	3 pts.	32 x 26 1/2 x 26 1/2
WFJ-100L	...	410	7,350	480	5,925	480	3,980	1	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	3 pts.	32 1/4 x 18 1/2 x 26 1/2
WFJ-100S	...	410	7,350	410	5,030	410	3,240	1	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	3 pts.	32 1/4 x 18 1/2 x 26 1/2
WFJ-100H	350	9,625	350	6,270	...	...	...	1 1/2	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	3 pts.	32 1/4 x 18 1/2 x 26 1/2
AFK-150L	...	...	...	410	8,000	410	5,505	1 1/2	2	8 lbs.	Freon	Air	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 31 1/2 x 29 1/4
AFK-150S	...	350	9,250	350	6,915	350	5,080	1 1/2	2	8 lbs.	Freon	Air	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 31 1/2 x 29 1/4
AFK-150H	270	10,500	270	7,610	...	...	...	1 1/2	2	8 lbs.	Freon	Air	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 31 1/2 x 29 1/4
WFK-150L	...	...	...	480	10,350	480	7,065	1 1/2	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 24 1/4 x 29 1/4
WFK-150S	...	400	12,100	400	8,455	400	5,560	1 1/2	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 24 1/4 x 29 1/4
WFK-150H	320	14,825	320	10,005	...	...	...	1 1/2	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 24 1/4 x 29 1/4
WFL-200S	...	450	16,600	450	11,418	450	7,300	2	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 24 1/4 x 28 1/2
WFL-200H	380	20,550	380	13,500	...	...	...	2	2	8 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	32 1/2 x 24 1/4 x 28 1/2
WFM-300S	...	460	25,300	460	17,910	460	12,005	3	3	10 lbs.	Freon	Water	Open	Reciprocating	V-Belt	8 pts.	36 1/2 x 25 1/2 x 29 1/2
WFM-300H	400	32,650	400	21,780	...	...	...	3	3	10 lbs.	Freon	Water	Open	Reciprocating	V-Belt	8 pts.	36 1/2 x 25 1/2 x 29 1/2

Kelvinator

Kelvinator Corp., Detroit, Mich.

Compressor—Sylphon bellows shaft seal. Cylinder head cooled by air on 1/2-hp. models, by water on "W" models, by refrigerant on all others. Oil bath and splash-type lubricating

system. Oil level measured by measuring rod. Special Kelvinator oil. Viscosity of compressor oil: 150 (Saybolt) except U and V models (300).

Condenser—Air-cooled models: continuous fin tube. Water-cooled models: spiral coil. Models 7 1/2-hp. and larger, shell and tube. Location of condenser: air-cooled models: rear of base; water-

cooled: under base except 1/2-hp. double-tube type.

Materials used—Cylinder block and pistons, cast iron. Condenser tubing, copper. Condenser shell, steel.

Liquid receiver—"H" models, horizontal type; others, vertical. All models have fusible safety plug and

valves. 7 1/2 hp. and larger have relief valve. All models have refrigerant filter.

Valves—Reed intake and discharge valves.

Controls—Kelvinator pressure or temperature. All models larger than "G" series have high pressure cutout.

Thermal overload cutout. Condensing water flow controlled by head pressure. Kelvinator water regulating valve.

Special features—All models have both intake and discharge valves in cylinder head.

Model No.	Refrigeration		Capacity		Motor		No. of Cyl.	Bore & Stroke	Pump Down Capac.	Refrigerant	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches
	40°	20°	5°	10°	Hp.	Vol.											
B-125-H	640	1,040	...	...	1 1/4 x 1 1/4	8.7	4 lbs.	SO ₂	Air	Open	Reciprocating	Belt	1.7 pts.	19 1/2 x 16 x 15 1/2
G-133-H	575	1,620	...	...	1 1/2 x 1 1/4	10.6	5 lbs.	SO ₂	Air	Open	Reciprocating	Belt	2.1 pts.	21 1/2 x 17 x 17 1/2
F-150-H	450	2,630	...	...	1-13/16 x 2 1/2	24	6 lbs.	SO ₂	Air	Open	Reciprocating	Belt	2.4 pts.	29 1/2 x 18 1/2 x 21 1/2
F-175	540	3,250	...	...	1-13/16 x 2 1/2	34	8 lbs.	SO ₂	Air	Open	Reciprocating	Belt	2.4 pts.	38 1/2 x 21 1/2 x 25
R-1100	330	4,600	...	...	2 1/4 x 3 1/4	34	8 lbs.	SO ₂	Air	Open	Reciprocating	Belt	3.6 pts.	40 1/2 x 22 1/2 x 26 1/2
R-1150	490	6,850	...	...	2 1/4 x 3 1/4	34	12 lbs.	SO ₂	Air	Open	Reciprocating	Belt	3.6 pts.	40 1/2 x 22 1/2 x 26 1/2
WG-133-H	640	1,960	...	...	1 1/2 x 1 1/4	10.6	5 lbs.	SO ₂	Water	Open	Reciprocating	Belt	2.1 pts.	21 1/2 x 16 1/2 x 17 1/2
WF-150-H	485	3,100	...	...	1-13/16 x 2 1/2	15	6 lbs.	SO ₂	Water	Open	Reciprocating	Belt	2.4 pts.	30 1/2 x 15 1/2 x 21 1/2
WF-175	600	3,790	...	...	1-13/16 x 2 1/2	21	8 lbs.	SO ₂	Water	Open	Reciprocating	Belt	2.4 pts.	37 1/2 x 18 x 25
WR-1100	400	6,050	...	...	2 1/4 x 3 1/4	21	8 lbs.	SO ₂	Water	Open	Reciprocating	Belt	3.6 pts.	39 1/2 x 18 x 26 1/2
WR-1150	550	8,320	...	...	2 1/4 x 3 1/4	23	12 lbs.	SO ₂	Water	Open	Reciprocating	Belt	3.6 pts.	39 1/2 x 20 1/2 x 26 1/2
WQ-1200	400	12,100	...	...	2 1/4 x 3 1/4	37	12 lbs.	SO ₂	Water	Open	Reciprocating	Belt	8.4 pts.	50 x 24 1/2 x 25 1/2
WQ-1300	490	14,800	...	...	2 1/4 x 3 1/4	41	20 lbs.	SO ₂	Water	Open	Reciprocating	Belt	8.4 pts.	50 x 24 1/2 x 25 1/2
B-325-H	465	1,190	465	810	1 1/4 x 1 1/4	5.8	3 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1.7 pts.	19 1/2 x 16 x 15 1/2
B-333-H	640	1,650	640	1,120	1 1/2 x 1 1/4	6.4	3 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1.7 pts.	21 1/2 x 17 x 17 1/2
G-350-H	575	2,650	575	1,770	1 1/2 x 1 1/4	13.4	4 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2.1 pts.	22 1/2 x 18 1/2 x 19 1/2
F-375	400	3,840	400	2,610	1-13/16 x 2 1/2	22	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2.3 pts.	38 1/2 x 21 1/2 x 25
F-3100	490	4,700	490	3,220	1-13/16 x 2 1/2	22	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2.3 pts.	38 1/2 x 21 1/2 x 25
R-3150	330	6,720	330	4,710	2 1/4 x 3 1/4	22	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3.5 pts.	40 1/2 x 22 1/2 x 26 1/2
R-3200	490	10,000	490	7,000	2 1/4 x 3 1/4	22	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3.5 pts.	40 1/2 x 25 1/2 x 25 1/2
WB-333-H	725	2,190	725	1,440	1 1/2 x 1 1/4	6.4	3 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	1.7 pts.	21 1/2 x 16 1/2 x 17 1/2
WG-350-H	640	3,250	640	2,160	1 1/2 x 1 1/4	8.4	4 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2.1 pts.	22 1/2 x 15 1/2 x 19 1/2
WF-375	490	5,070	490	3,360	1-13/16 x 2 1/2	14	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2.3 pts.	37 1/2 x 18 x 25
WF-3100	600	6,080	600	4,030	1-13/16 x 2 1/2	14	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2.3 pts.	37 1/2 x 18 x 25
WR-3150	400	9,380	400	6,300	2 1/4 x 3 1/4	14	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3.5 pts.	39 1/2 x 18 x 26 1/2
WR-3200	550	12,880	550	8,750	2 1/4 x 3 1/4	15	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3.5 pts.	39 1/2 x 20 1/2 x 26 1/2
WQ-3300	400	18,750	400	12,670	2 1/4 x 3 1/4	28	15 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8.3 pts.	50 x 24 1/2 x 25 1/2
WQ-3500-H	590	27,500	590	18,650	2 1/4 x 3 1/4	47	15 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8.3 pts.	70 x 25 1/2 x 32
WU-3750-H	650	53,200	...	...	3 1/2 x 4 1/2	122	*	CH ₃ Cl	Water	Open	Reciprocating	Belt	22 pts.	72 x 28 1/2 x 46 1/2
WV-31000-H	400	75,500	...	...	3 1/2 x 4 1/2	248	*	CH ₃ Cl	Water	Open	Reciprocating	Belt	22 pts.	93 1/2 x 31 x 46
WV-31500-H	650	105,800	...	...	3 1/2 x 4 1/2	248	*	CH ₃ Cl	Water	Open	Reciprocating	Belt	22 pts.	93 1/2 x 31 x 46

Frigidaire

Frigidaire Corp., Dayton, Ohio.

Compressor—Bellows shaft seal. Cylinder head cooled by air. Models W-4-E, W-5-F, and W-6-G have water-cooled discharge valve plate. Splash-

type lubricating system for all except models FW-701 and FW-702 which have forced-feed type. Oil level measured by oil level plug on all but models FW-701 and FW-702 which have sight glass. Type of compressor oil: mineral.

Condenser—Air-cooled models: fin

tube. Water-cooled models: shell and tube. Location of condenser: water-cooled models below frame; air-cooled models on long side of frame at back.

Valves—Disc-type intake and discharge valves.

Liquid Receiver—Horizontal type.

All models except LA, LB, F-1-B, I-C, and F-1-C have fusible safety plug. All models have refrigerant filter.

Controls—Frigidaire pressure control. All water-cooled models, and air-cooled models 1/2 hp. and up have high pressure cutout. Thermo element overload cutout. Condensing water

flow controlled by pressure regulated valve. Frigidaire water regulating valve.

Materials Used—Cylinder block: semi-steel. Pistons: cast iron. Condenser tubing: air-cooled models, steel; water cooled, brass. Condenser shell: steel.

Model No.	Refrigeration		Capacity		Motor		No. of Cyl.	B
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Reconditioned Units Upset Market in South Africa

JOHANNESBURG, South Africa.—Arrival and sale of some 90 reconditioned electric refrigerators of various well-known American makes has disturbed regular distributors of electric refrigerators here, reports Edward B. Lawson, American trade commissioner.

In addition to those already arrived, there are reports that 200 more are enroute to South African ports, and it is the possibility of a continuous supply of these refrigerators which is causing concern in the trade, Mr. Lawson says.

Importers are using a local auctioneering house as a distribution outlet, a procedure which is much more common in South Africa than in the United States. Advertisements in local newspapers describe the refrigerators as "practically new," and claim they are in guaranteed perfect order. Auction price includes installation, but no mention is made of further service. The refrigerators are displayed connected and running on the floor of the auctioneering house.

The South African market has become an important buyer of electric refrigerators in recent times. While official import statistics do not classify electric household refrigerators separately, it is estimated that some 15,000 units were imported during the year ended Dec. 31, 1934. Virtually all of the units were supplied by American manufacturers.

Radio Bidding Contest Builds Prospect List

NASHVILLE, Tenn.—Sterchi Bros. store here has introduced a radio bidding sale as a method of arousing interest and obtaining prospects for summer domestic refrigerator sales.

The store offers to sell an electric refrigerator to the highest bidder during each of its 15-minute broadcasts over a local radio station. Listeners are urged to submit their bids, together with the terms on which they will pay for the refrigerator.

Bids are tabulated, the best one selected, and the refrigerator installed at the price Sterchi Bros. officials choose as the winner. Names of bidders who do not qualify for refrigerators are listed as prospects for refrigerators at the regular list prices.

Tagliabue Opens Branch Factory at Dallas

DALLAS—To more conveniently serve customers in the south central states, C. J. Tagliabue Mfg. Co. of Brooklyn has opened a new branch factory here, to replace the Shreveport, La., branch, which was closed recently.

The new branch factory will handle repair work, with special attention to emergency orders. A. G. Koenig, southwestern district manager for Tagliabue Co., will be in charge.

No Room in Kitchen So Unit Is Placed in Bedroom

STATEN ISLAND, N. Y.—Miss G. K. McCleary of the New York & Richmond Gas Co., is credited with one of the most unusual sales made here in recent years.

When her prospect wavered in purchasing an Electrolux model because it was too large to fit into her kitchen, Saleslady McCleary suggested that the refrigerator be put into the bedroom, and got the order.

Brooklyn Gas Sales in January Total \$60,000

BROOKLYN—Approximately \$60,000 worth of appliances were sold by salesmen of the Brooklyn Union Gas Co., during the month of January. Seventy-seven per cent of this total represented retail business.

Does Own Sales Talking



A Kelvinator super-deluxe model that acts as its own salesman is the novel promotion stunt being employed in Pennsylvania by Biehl's Auto Parts Co., Kelvinator distributor in Pottsville, Pa. When a passerby walks within a few feet of the door of this Kelvinator, the door opens automatically (by means of a photoelectric cell) and then introduces itself, after which it delivers a sales talk about the various Kelvinator features. In the above photograph Gordon M. Biehl is explaining the device to Verne Calkins, middle Atlantic sales manager of Kelvinator.

Appliance Prospects Checked by Girls in Salt Lake City

SALT LAKE CITY—Housewives of this city are busy answering doorbells, but it isn't always the man with brushes or hosiery they find parked on the doorstep. It's a young woman seeking an interview; and she has more questions in her head than a census taker.

Felt Radio Co., Crosley dealer, has two women working the city, checking prospects called upon and making a notation on a card that lists half a dozen of the major electric kitchen appliances and whether the prospect has any of them or not.

Other information is obtained by ascertaining the prospect's occupation, whether or not the family owns a home, and whether cash or time payment will be in order.

Although the plan was put into operation during cold weather and has been in use for only a brief period, more than 100 prospects have been obtained and it is expected that many of these will be closed sales by the time this story is in print.

Another feature of the Felt Co. campaign is an outdoor display at the store. A filled and lighted refrigerator is placed on a stand over the front door. Attention of the passersby is obtained by having the refrigerator door swing back and forth continually through the day. It is operated by a fan motor connected on the inside of the store. Food display inside the refrigerator is protected from dust by glass covering.

Louisville & Indiana Men Report Sales Gains

CINCINNATI—Better business conditions were reported by S. J. Rapier, vice president, and James E. Thalmuller, service manager of Cooper-Louisville Co., Crosley distributor, and Clifford Bensinger of Clifford Bensinger Furniture Co., New Albany and Jeffersonville, Ind., who with Cut Carey, district manager, visited the Crosley factory last week.

Mr. Rapier reported his sales were running 500 per cent ahead of last year, and Mr. Bensinger reported a 250 per cent increase over 1934 sales for the same period.

B & O Appoints Seven Norge Dealers in New Jersey

NEWARK — B. & O. Radio, Inc., Norge distributor here, recently appointed several retail organizations in the Northern New Jersey area Norge dealers, reports Ben Oppenheim, head of the distributing firm.

Albert Lifson & Son, furniture and appliance concern with stores in this city, and in Elizabeth, will handle Norge refrigerators and washers. Rudolph Lifson heads the local store, while E. Lifson is manager of the Elizabeth branch.

Another Elizabeth county Norge distributor will be the Kresge Department Store, recently opened at 1143 E. Jersey St.

Newly appointed Norge dealers in Paterson are: Slater's, Inc., 142 Main St., and Bograd Bros., 92 Market St.

Other firms who will handle Norge products, are: Young's Appliance Co., 746 Maine Ave., Clifton; Revere Radio, 266 Bloomfield Ave., Caldwell; Radio and Television Sales, 273 Glenwood Ave., Bloomfield.

Zamoiski Moves to Larger Offices

BALTIMORE—Joseph M. Zamoiski Co., local Norge distributor, has moved to new and larger quarters at Pratt and Pica Sts.

In addition to its sales office, showrooms, and executive offices, the concern has a completely equipped service shop and warehouse facilities with railroad siding, at its new location.

Formerly the company maintained its offices and warehouse at 111 W. Redwood St.

Prospect Plan Opens Doors for Salesmen

EFFINGHAM, Ill.—Smith Electric Shop, electrical goods store here, gives its users an opportunity to make money by writing out "cards of introduction" to friends, which the dealer's salesmen can use, reports A. Turner, president, Central Auto Equipment Co., which distributes Crosleys in Springfield, Ill.

A letter is sent to owners of Crosley electric refrigerators by the store and signed by Mr. Smith, in which an offer is made as follows:

"Here is the plan—fill in the space below with names of people you know or think are interested in an electric refrigerator. Every time we sell a Crosley Shelvador refrigerator to one of these people, we will send you a dollar bill.

"The only condition is this—the name of the prospect must be in at least one day before the sale is made, so be sure to get your list to us promptly. Any additional names you learn may be submitted at any time."

Names received are assigned to salesmen, who are supplied with a card of introduction reading:

"This will introduce our Crosley Shelvador representative." A blank line is provided in which to write or type the salesman's name. "Any courtesy shown him will be greatly appreciated by Smith Electric Shop."

G-E Contracts Corp. Opens Buffalo & Seattle Office

NEW YORK CITY—General Electric Contracts Corp. has recently opened two new offices, one in Buffalo, N. Y., under the direction of Arthur Woods, and the other in Seattle, with Herman Garfinkel in charge.

IN SAFETY-ZONE REFRIGERATION STEWART-WARNER HAS COMBINED

SALABILITY THAT BUILDS YOUR PROFITS

DEPENDABILITY THAT MAKES PROFITS NET

● To build profits for dealers in 1935, Stewart-Warner has designed a line that includes the common-sense features that you can sell—the features customers look for and want. Check them over: (1) Real Food-Preservation Performance; (2) Smart Appearance; (3) Rugged Construction; (4) Practical Convenience Features. You'll agree that this line has Salability.

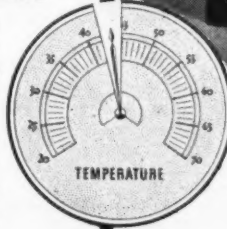
To protect dealers against "feeding back" their profits for servicing and repairs, every Stewart-Warner Refrigerator has the famous, trouble-free Slo-Cycle mechanism—the mechanism that has caused dealers everywhere to call Stewart-Warner "The Line Without A Service Problem." Ask any dealer that handles the line and you'll hear how Stewart-Warner dependability makes retail profits net.

So, to completely round out your selling program for the season, be sure to get complete information from your Stewart-Warner distributor. He has a dealer plan you'll like. Phone, wire or write him today.

STEWART-WARNER CORP'N.
1841 Diversey Parkway Chicago, Illinois

WHAT SAFETY-ZONE REFRIGERATION MEANS

Authorities agree that a temperature between 42° and 45° F. is the ideal zone for proper food preservation. In this zone foods are kept at their best—at colder temperatures they dehydrate more rapidly with loss of flavor in the drying process—in warmer temperatures there is danger of spoilage. Stewart-Warner accurately maintains this Safety-Zone Temperature—confines fluctuation to these narrow limits. Does it economically.



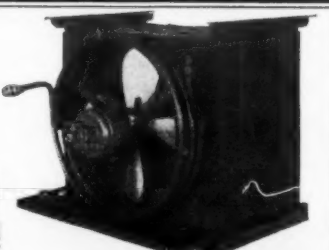
STEWART-WARNER

New-Type ELECTRIC REFRIGERATOR

KRAMER UNIT COOLERS

Manifolded for FREON

Designed with maximum Fin Coil Surface and minimum air flow (CFM) per square foot of surface to permit operation at high evaporator temperature for minimum dehydration effect, and maximum capacity for Condensing Unit.



Units especially designed for FREON are manifolded and provided with drier coil.

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Decentralized Plan Of Sales Operation Adopted by Caswell

By T. T. Quinn

DETROIT—To boost sales effectiveness and insure a balanced job of selling by its representatives, Caswell, Inc., General Electric distributor for Michigan, has switched its Detroit metropolitan organization over to a modification of the "St. Louis plan."

The plan, devised several years ago by James & Co., G-E distributor in the Missouri city, consists in general in a decentralization of the distributorship, with expensive branch stores being replaced by showrooms, manned either by independent dealers or by salesmen financed by the distributor.

Salesmen, instead of being permitted to travel anywhere in the city, are given a specified territory to cover, and their work supervised rather closely to determine how much effort they are putting into their job.

This, naturally, results in a better sales record, with a much lower operating cost per sale.

Lewis & Warren Direct Plan

To put the new plan into effect, Syd Caswell, proprietor of the distributorship, brought in Paul Lewis, Jr., and Harry Warren from the Hoosier Electric Refrigerator Corp., Indianapolis, G-E distributor, as sales manager and sales promotion manager. These two men had become acquainted with the plan when Hoosier Electric put in a modification of it last year.

Under their supervision, Detroit has been divided into territories of approximately 2,000 electric meters each, and a salesman put over each territory. For every four salesmen there is a district (or zone) manager (himself a salesman) to whom these men must report, and who is in turn responsible for their sales records.

The district manager holds daily conferences with each of the three salesmen under him at strategic points in their territory, and goes over their sales problems with them in an effort to increase their selling effectiveness.

"Controlled Store Managers"

Over the district managers are "controlled store managers," one of whom is in charge of each of Caswell's seven branch display rooms located throughout the city. These are in turn responsible directly to the sales manager for the work of the district managers.

This system of divided responsibility—"the old Army system," Mr. Warren calls it—with each executive, from district manager up, handling a small compact group of men instead of a large, unwieldy organization, makes possible a much more detailed concentration on the efforts of the individual salesman, with a consequent rise in sales efficiency and a drop in unit sales cost.

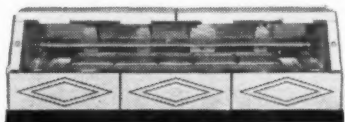
Caswell expects to have salesmen working in 50 zones over the city during the height of the selling season, and as soon as the plan has been put completely into effect.

Under the system which was in effect up to the present time, Detroit was divided into two big territories, east and west, and a divisional sales manager placed in charge of each, responsible only to the head sales manager.

Supervisors, under the divisional sales managers, were in charge of salesmen working in various districts throughout the city. Branch stores, seven of them, were fully stocked with a complete line of refrigerators and other electric appliances, and a store manager, office force, and floor salesmen set up in each of them.

With this organization, it was found that much effort was being duplicated, and that salesmen had a tendency to skim only the cream from the territory.

SALESMEN WANTED



The sensational success of the revolutionary FRIEDRICH FLOATING AIR REFRIGERATORS from coast to coast has created an unprecedented number of openings for reliable and industrious salesmen. This unusual situation has prompted us to use this advertisement to attract the attention of refrigeration salesmen familiar with meat market, grocery, florist, cafe and hotel trade.

WRITE IMMEDIATELY, pen and ink personal handwriting, giving full qualifications in first letter and state territory in which you prefer to work.

ED. FRIEDRICH
Manufacturer Commercial Refrigerators Since 1883
SAN ANTONIO, TEXAS

Kelvinator and G-E Open New Stores in Chicago



Picture on the left is that of the roomy showroom at the headquarters of Kelvinator's Chicago showroom. On the right R. Cooper, Jr., Chicago General Electric distributor, is shown with entertainers who participated in the opening of his newest and largest salesroom, located at 4836 Broadway.

tory assigned to them, leaving many potentially good prospects almost untouched.

Display Stores Only

Under the revamped Caswell plan, the branch stores will keep a stock of refrigerators and appliances for display only. All deliveries will be made from the central Caswell office. Operating the store will be a "controlled store manager," minus clerical and sales force, and dependent for his income on the work of the district managers and their salesmen.

Also eliminated under the new system are expensive store leases, the two divisional sales managers, all the supervisors, and the inventories necessary in each store when deliveries to customers were being made from them.

Daily Meetings Held

In its new policy of closely supervising the work of the individual salesman, Caswell has inaugurated a series of daily sales meetings, at which salesmen meet, swap ideas, hear informative and inspirational talks by company executives, and in general prepare themselves for the day ahead. These meetings are held at 8:30 each morning.

"They told us nobody would come to the meetings," Mr. Warren said, "but when they found out we had something to say—something that would benefit them and make them better salesmen—the attendance matter took care of itself."

Commission Scale Changed

With the new plan, the scale of salesmen's commissions was also changed, to encourage development of a "balanced sales job"—the selling of all electrical appliances rather than concentration of only one particular item.

This, too, explains Mr. Warren, is to enable the salesman to stabilize his income throughout the year and to get away from the peaks and valleys (in terms of commissions) which so many specialty salesmen experience.

Where, under the former system, salesmen were paid a flat rate of commission on all sales, regardless of type, under the new system they are given a base commission, with bonuses each month if they meet their balanced sales quota during that time, and an additional annual bonus if they maintain their quota for the year.

For example: if, under the old plan, the salesman was paid a straight 15 per cent on all sales, under the present plan he receives a base commission of 10 per cent at the time of the sale. If, at the end of the month, he can show a balanced sales record with regard to principal appliances, he receives an additional 4 per cent; and, at the end of the year, if he has kept his sales job balanced, a second bonus of 1 per cent is added.

Thus, while his commission is essentially the same under the new plan, he is forced to spread his sales efforts over all appliances if he is to realize his full earning power.

In hiring salesmen, Caswell does not demand a background of specialty sales experience. Quite to the contrary. Experienced specialty salesmen, Mr. Warren says, often have selling habits which they must unlearn before they become valuable to a new plan or method.

New salesmen are given a week's training in the Caswell method before

they are permitted to call on prospects for themselves. The first four days are spent in the store, watching the tactics of floor salesmen, and absorbing all they can about the various appliances, and the next three days with the district manager under whom he is to work.

All salesmen are required to take the G-E specialty appliance sales training course, prepared by LaSalle Extension University.

Grant Made G-E Dealer In Iowa Territory

ONAWA, Iowa—A. M. Grant has been appointed to handle the General Electric line of refrigerators and other electrical appliances in Onawa and surrounding territory.

7,000 Attend Opening Of Cooper's New Store

CHICAGO—When R. Cooper Jr. Inc., G-E distributor here opened its new store at 4865 Broadway, more than 7,000 persons visited the new salesroom, and 53 orders were closed on the opening day.

This attendance at the opening was the result of an advertising campaign conducted in local newspapers and two local theaters.

As a promotion feature, prizes, among which was a G-E console model radio, were given away at a drawing held Saturday night.

Armour & Co., meat packers, served samples of corn beef hash from the G-E kitchen in the window of the new store.

A record of 125 sales was made at the new store during the first week, according to J. S. Duncombe of the distributor's sales production department.

6 New Dealers Appointed For Crosley Refrigerators

CINCINNATI—Six large stores in different parts of the country have been appointed dealers for Crosley electric refrigerators, H. E. Richardson has announced.

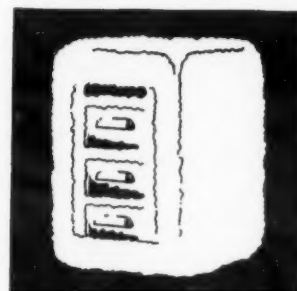
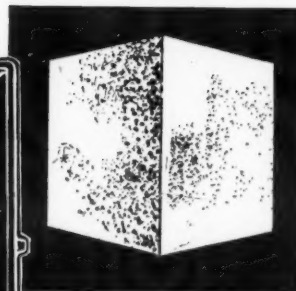
The stores are Max Barnett Furniture Co., New Orleans; Good Housekeeping Shop, Providence, R. I.; Stern & Co., Philadelphia; Commercial Trading Co., Norfolk, Va.; Feld Furniture Co., Vicksburg, Miss.; and St. Paul Furniture Co., St. Paul.

Startling facts
THAT PUT TEETH IN
SPARTON'S SALES
STORY



TUNE IN Sparton program with Jolly Coburn—Sundays, 4:00-4:30 P.M. E.S.T., N.B.C. Blue Network.

3/8 INCH OF FROST ON REFRIGERATOR COILS HAS SAME INSULATING EFFECT AS 3 INCHES OF GRANITE



You wouldn't expect a refrigerator to operate properly if its coils were encased by a 3-inch wall of granite! Science tells us that this represents exactly what a refrigerator has to overcome when its coils are coated with a 3/8 inch layer of frost. 3/8 inch of frost on coils means a loss of 30% of refrigerator efficiency.

BUREAU OF STANDARDS FACTS:
3/8 INCH OF FROST HAS SAME INSULATING EFFECT AS:

3 inches of granite 1 inch soft rubber
3/4 inch of plaster 3/4 inch of cement
1 1/2 inches of boiler scale

PROFIT with SPARTON the ONLY refrigerator that is completely automatic

To prevent the WASTE and inefficiency of frost-caked coils, make sure that the electric refrigerator you sell will defrost itself—regularly and properly. The Sparton Antifrost Electric Clock positively eliminates the poor air circulation, uneven temperature, faulty food protection and waste in electricity that go hand in hand with irregular defrosting. The Antifrost Clock puts an end to paying for wasted electricity and improper food protection. In addition, it acts as a handy dependable kitchen clock. *Sell by the Clock.* It's your customers' guarantee of up-to-date refrigeration and complete satisfaction. It's YOUR assurance of getting in on a whale of a good sales proposition that's making big money for Sparton dealers. Write or wire The Sparks-Withington Company, Jackson, Michigan. Sparton of Canada, Ltd., London, Ontario.

Sell

SPARTON THE EXTRA-FEATURE REFRIGERATOR



VEGABIN
For storing of vegetables and other bulky foods.



BASKADOR
A convenient shelf space on the inside of the door.



20% TO 30% GREATER ECONOMY
Slower running unit also has longer life.



FASTER FREEZING
Quiet operation—fastest known freezing principle.

Will The Dealers

who are conscious of the value of Artificial Food Display and who want to know how to obtain a full Refrigerator Display, for less than \$5.00, inquire from their source of refrigerator supply, or by writing the

CINCINNATI DOLL CO.

Artificial Food Department
311-313 E. 12th St., Cincinnati, Ohio

Copeland

Copeland Refrigeration Corp.
Detroit, Mich.

Compressor—Bellows shaft seal.
Water-cooled models, except QW-2

and RW, have cylinder head cooled by water. Air-cooled models have cylinder head cooled by air. Splash-type lubricating system. Oil level measured by oil level plug. Sun No. 3 compressor oil. Viscosity of compressor oil: 150 at 100° F.

Condenser—Air-cooled models: fin tube. Water-cooled models: shell and tube.

Valves—Disc-type intake valves, reed and disc-type discharge valves.

Liquid Receiver—Vertical and hori-

zontal type. All water-cooled models have fusible safety plug. All models have refrigerant filter.

Controls—Penn pressure and temperature control. Models ½ hp. and larger have high pressure cutout. Thermal overload cutout. Condensing

water flow controlled by condensing pressure. Penn and Riley water regulating valve.

Materials Used—Cylinder block and pistons: semi-steel. Condenser tubing: copper. Condenser shell: steel.

Model No.	Refrigeration				Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches		
	40° R.p.m.	40° B.t.u.	20° R.p.m.	20° B.t.u.	5° R.p.m.	5° B.t.u.	10° R.p.m.	10° B.t.u.														
IC-1	...	...	...	...	360	600	360	474	¼	1	1½ x 1½	2½	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	¾ pt.	14	14½	25½
IC-2	...	...	...	...	360	1,272	360	1,122	¼	1	2 x 1½	2½	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	14	14½	25½
IC-3	...	...	...	...	440	2,928	440	1,950	½	2	2 x 1½	2½	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	21½	11½	26½
A-1-L	...	...	360	708	360	600	360	474	¼	1	1½ x 1½	2½	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	¾ pt.	21	17	16
AM	...	...	360	1,470	360	1,272	360	1,122	¼	1	2 x 1½	2½	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	21	17	16
Q	440	2,640	440	1,830	440	1,476	440	1,290	¼	1	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	28½	17½	19
Q-2	300	3,900	300	2,664	300	2,010	300	1,458	½	2	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	28½	17½	19
QW-2	300	3,990	300	2,760	300	2,040	300	1,476	½	2	2 x 1½	18	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2 pts.	28½	14½	18½
R	440	5,748	440	4,008	440	2,928	440	1,950	½	2	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	28	17½	19
RW	440	6,090	440	4,080	440	2,970	440	2,022	½	2	2 x 1½	18	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2 pts.	28½	14½	18½
SA	640	8,460	640	5,700	640	3,840	640	2,610	¾	2	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	28½	18	19
W	250	10,260	250	6,780	250	4,656	250	3,312	¾	2	2½ x 3	28	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	6 pts.	38½	18½	27½
WA	250	10,260	250	6,780	250	4,656	250	3,312	1	2	2½ x 3	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	6 pts.	38½	18½	27½
X	365	14,220	365	9,360	365	6,438	365	4,680	1	2	2½ x 3	25	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	6 pts.	38½	18½	27½
XA	365	14,220	365	9,360	365	6,438	365	4,680	1½	2	2½ x 3	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	6 pts.	39½	23½	24½
V	500	21,000	500	13,980	500	9,600	500	6,450	1½	2	2½ x 3	25	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	6 pts.	38½	18½	27½
Y	...	...	...	...	365	14,250	365	9,150	2	3	2½ x 4	35	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	7 pts.	47½	21½	30
Z	...	...	...	...	500	19,500	500	13,080	3	3	2½ x 4	35	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	7 pts.	47½	21½	30
AY	365	30,000	365	21,300	...	...	...	...	3	3	2½ x 4	35	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	7 pts.	47½	21½	30
AZ	500	42,000	500	29,400	...	...	...	...	5	3	2½ x 4	35	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	7 pts.	47½	21½	30

Universal Cooler

Universal Cooler Corp., Detroit, Mich.

Compressor—Bellows and lubricated ring type shaft seal. Cylinder head cooled by air on all air-cooled models; water on "W" or "AW" models except model 332. Splash-type lubricat-

ing system. Oil level measured by bulls-eye glass in crankcase on models 1002-W-15003 inclusive. Special dehydrated refrigeration oil for methyl chloride and Freon refrigerants. Viscosity of compressor oil: for methyl chloride, 240-260 at 100° F.; for Freon 150-175 at 100° F.

Condenser—Air-cooled models: con-

tinuous fin tube. Water-cooled models: double-tube using counterflow principle. Condenser mounted on base opposite motor, except for models W-2003 to W-15003 inclusive, where it is between motor and compressor.

Controls—Penn or Detroit Lubricator pressure control. All "W" and "AW" models have high pressure cut-

out. Overload relay overload cutout. Condensing water flow controlled by head pressure. Penn water regulating valve on all but models W-7503, AW7503, W10003, AW10003, W15003, and AW-15003 which use Electromatic valve.

Special features—The ¾-hp., 1½-hp., 2-hp., and 15-hp. models, together with

the AW-10003 unit, are equipped with overhead intake valves.

Valves—Swedish flapper intake valve, flange seated cup discharge valves.

Materials used—Cast semi-steel cylinder block. Cast iron pistons. Copper condenser tubing.

Model No.	Refrigeration				Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches		
	40° R.p.m.	40° B.t.u.	20° R.p.m.	20° B.t.u.	5° R.p.m.	5° B.t.u.	10° R.p.m.	10° B.t.u.														
251	...	...	360	1,250	...	...	...	...	¼	1	1-13/16 x 1½	5	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	1 pt.	26	18½	22
332	...	...	320	1,990	...	...	...	...	½	2	1-13/16 x 1½	5	3½ lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	2½ pts.	26	18½	22
W-332	...	...	360	2,780	...	...	...	...	½	2	1-13/16 x 1½	5	3½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	2½ pts.	26	18½	22
502	...	...	320	3,160	...	...	...	...	½	2	2½ x 1½	6	4 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3 pts.	32	19½	23
W-502	...	...	385	4,350	...	...	...	...	½	2	2½ x 1½	6	4½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	3 pts.	32	19½	23
752	...	...	320	4,230	...	...	...	...	¾	2	2½ x 2	6	4½ lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3 pts.	32	19½	25
W-752	...	...	385	6,230	...	...	...	...	¾	2	2½ x 2	6	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	3 pts.	32	19½	25
1002	...	...	275	6,780	...	...	...	...	1	2	2½ x 3	11½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
AW-1002	275	13,330	...	...	...	...	...	...	1	2	2½ x 3	16½	12 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
W-1002	...	...	320	8,700	...	...	...	...	1	2	2½ x 3	11½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
1502	...	...	320	9,400	...	...	...	...	1½	2	2½ x 3	11½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
AW-1502	320	18,950	...	...	...	...	...	...	1½	2	2½ x 3	16½	12 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
W-1502	...	...	400	12,770	...	...	...	...	1½	2	2½ x 3	11½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
2002	...	...	400	11,800	...	...	...	...	2	2	2½ x 3	11½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
AW-2002	400	23,650	...	...	...	...	...	...	2	2	2½ x 3	16½	12 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
W-2002	...	...	480	15,430	...	...	...	...	2	2	2½ x 3	11½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	38½	25	30½
W-2003	...	...	400	20,000	...	...	...	...	2	3	2½ x 3	19½	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	8 pts.	52½	25	31½
AW-3003	400	36,450	...	...	...	...	...	...	3	3	2½ x 3	28	14 lbs.	Freon	Water	Open	Reciprocating	V-Belt	8 pts.	52½	25	31½
W-3003	...	...	470	23,450	...	...	...	...	3	3	2½ x 3	19½	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	8 pts.	52½	25	31½
AW-5003	400	59,000	...	...	...	...	...	...	5	3	3½ x 3	28	16 lbs.	Freon	Water	Open	Reciprocating	V-Belt	9 pts.	52½	25	31½
W-5003	...	...	470	38,550	...	...	...	...	5	3	3½ x 3	19½	14 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	9 pts.	52½	25	31½
AW-7503	275	88,500	...	...	...	...	...	...	7½	3	4 x 4¼	43½	20 lbs.	Freon	Water	Open	Reciprocating	V-Belt	12 pts.	65	32½	36½
W-7503	...	...	345	62,300	...	...	...	...	7½	3	4 x 4¼	30½	17½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	65	32½	36½
AW-10003	345	112,200	...	...	...	...	...	...	10	3	4 x 4¼	43½	20 lbs.	Freon	Water	Open	Reciprocating	V-Belt	12 pts.	67	32½	36½
W-10003	...	...	400	70,300	...	...	...	...	10	3	4 x 4¼	30½	17½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	67	32½	36½
AW-15003	525	151,500	...	...	...	...	...	...	15	3	4 x 4¼	43½	22 lbs.	Freon	Water	Open	Reciprocating	V-Belt	12 pts.	67	32½	36½
W-15003	...	...	525	89,500	...	...	...	...	15	3	4 x 4¼	30½	19 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	67	32½	36½

Ice-O-Matic

Williams Oil-O-Matic Heating Corp. Bloomington, Ill.

Model No.	Refrigeration				Capacity		— 10° —		Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Com-pressor Drive	Quantity of Oil	Overall Dimensions Inches		
	— 40° —	B.t.u.	20°	B.t.u.	5	R.p.m.	B.t.u.	R.p.m.												B.t.u.		
A-25	¼	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	20	x 28	x 24
A-25-S	¼	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	20	x 28	x 24
A-25-F	¼	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	20	x 28	x 24
B-33	½	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	20	x 28	x 24
B-33-S	½	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	20	x 28	x 24
B-33-F	½	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	20	x 28	x 24
B-50	¾	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	21½	x 29½	x 20¼
B-50-S	¾	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	21½	x 29½	x 20¼
B-50-F	¾	2	1½ x 1½	5.6	4 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	3 pts.	21½	x 29½	x 20¼
C-75	¾	2	2 x 2¾	23	5 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	26	x 35	x 26½
C-75-S	¾	2	2 x 2¾	23	5 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	26	x 35	x 26½
C-75-F	¾	2	2 x 2¾	23	5 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	26	x 35	x 26½
D-100	1	2	2¾ x 2½	23	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	27½	x 35	x 28¾
D-100-S	1	2	2 x 2¾	23	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	27½	x 35	x 28¾
D-100-F	1	2	2¾ x 2½	23	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	27½	x 35	x 28¾
F-150	1½	2	2¾ x 2½	23	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	30	x 41	x 27
F-150-S	1½	2	2¾ x 2½	23	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	30	x 41	x 27
F-150-F	1½	2	2¾ x 2½	23	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	30	x 41	x 27
VW-200	2	4	2¾ x 2½	20	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	21¼	x 37	x 30
VW-200-S	2	4	2¾ x 2½	20	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	21¼	x 37	x 30
VW-200-F	2	4	2¾ x 2½	20	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	21¼	x 37	x 30
WW-300	3	4	2¾ x 2½	20	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	21¼	x 37	x 30
WW-300-S	3	4	2¾ x 2½	20	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	21¼	x 37	x 30
WW-300-F	3	4	2¾ x 2½	20	7 lbs.	CH ₃ Cl	*	Open	Reciprocating	Belt	4 pts.	21¼	x 37	x 30

Survey Tells How Manufacturers Regulate Dealer Advertising

CHICAGO—Media and copy regulations of 61 manufacturers of major household appliances who use a dealer cooperative advertising plan, their policy with reference to dealer sales helps, how settlement with dealers is effected, etc., were analyzed in a survey made recently by *Advertising Age*.

About three-fourths of the manufacturers stated that they have a standard list of different types of media in which dealers may spend their allowance. In several instances, newspapers were the only medium on this "standard list."

As may be seen from table 1, the per cent of mention of different types of media reported among all manufacturers interviewed was as follows: newspapers, 89 per cent; local radio, 62 per cent; posters, 43 per cent; handbills or circulars, 35 per cent; local store displays, 11 per cent; direct mail, 8 per cent; shows, cooking schools, movies, selling stations such as space at fairs, etc., each 5 per cent; and theater or opera programs were named by one manufacturer.

Table 1 tabulates answers given to the question, "If you have a standard list of different types of media in which dealers may spend their allowance, check the following types, if any (newspapers, billboards, local radio, and handbills) and add any others not listed."

Table 1—Standard Media

	Refrigerators	Radio	Washer	Ironer	Cleaner	Total
Newspapers	7	11	8	4	3	33—89%
Local radio	5	10	4	2	2	23—62%
Billboards	5	8	1	..	2	16—43%
Handbills—circulars	3	5	3	1	1	13—35%
Local displays	1	2	..	..	..	4—11%
All depends on dealer's preference	1	..	1	1	1	4—11%
Direct mail	..	2	..	..	1	3—8%
Shows	1	1	..	..	..	2—5%
Cooking schools	1	1	..	..	..	2—5%
Movies	1	1	..	..	..	2—5%
Selling stations (space) at fairs, etc.	..	..	1	1	..	2—5%
Programs (theater & opera)	..	1	..	..	..	1—3%

As to regulations in permitting dealers to write their own copy, 80 per cent of the manufacturers stated that dealers were permitted to do so. In one-quarter of the cases, it was specified that such copy is subject to factory o.k. Ten per cent of the manufacturers replied to the question negatively, and the same proportion did not answer. General experience of 42 per cent of the manufacturers showed that key accounts did not use factory prepared copy.

With respect to free copy and layout service to dealers to meet local problems, at their request, about 80 per cent of the manufacturers said that they extend such free service to the dealers.

Manufacturers were asked if the cost of consumer booklets, window display cards and other "dealer helps" was charged to cooperative advertising or to general sales promotion expense. Seventy-seven per cent replied that such costs were charged to general sales promotion expense, as compared to 15 per cent who named cooperative advertising, and 8 per cent who did not answer the question.

Table 2 shows proration of cost on dealer helps as shown by manufacturers who charge in part for window

displays, consumer booklets, and other "dealer helps."

In the case of mats and electros, about 65 per cent of the manufacturers furnish these items free to the dealers. Only one of the manufacturers charges the entire cost to the dealer. The remainder charge in one of the following ways: charge dealers in part; some mats and electros free, others charged for in whole; charged to distributors' cooperative account; and mats free, electros at cost.

In reply to the question as to whether manufacturers require receipted invoices and tear sheets (or other evidences of paid expenditures) before making reimbursements or issuing credits, over three-fourths of the manufacturers stated that they require evidence of paid expenditures in all cases, 13 per cent said that tear sheets were required in all cases but that receipted invoices were not requested in the case of certain utilities and department stores.

Eighty per cent of the manufacturers pay the factory share of approved cooperative advertising expenditure by issuing a credit, while 4 per cent pay in cash.

About one-half of the manufacturers allow 60 days or less for dealers to file receipted invoices and tear sheets, after the advertising has appeared.

Approximately 60 per cent of the manufacturers make reimbursement

or issue credit within two or three days to one week after receiving receipted invoices and tear sheets, or as soon as dealer's claim has been checked; about 23 per cent within 10 to 30 days, and a few within 30 to 60 days.

Two-thirds of the manufacturers require that a final settlement be made for cooperative advertising either within the year or within a definite period after the close of the season.

Almost two-thirds of the manufacturers stipulate that all unused allowances revert to the factory or to the distributor at the close of the season. In most cases, the unused allowance reverts to the factory rather than to the distributor.

Lincoln Sales to Move to Larger Quarters

BALTIMORE — Lincoln Sales Inc., Crosley distributor in the Baltimore and Washington trade areas, will move to new and larger quarters at 1307 St. Paul St., early this month.

Charles H. Buchwald heads the concern which has been located at 1031 Cathedral St.

Table 2—Proration of Cost of Dealer Helps

	No. of Manufacturers
Depends—factory gets by with as small a loss as possible	1
Depends on material furnished	1
Small charge for handling and mailing, in case of special portfolios	2
60 per cent to manufacturer—40 per cent to dealer	4
50 per cent to manufacturer—50 per cent to dealer	5
Fixed charge for certain display pieces or portfolios	3
Certain items are free, but those charged for are sold at cost	1
No set formula—it varies	1
Literature and direct mail, 1/3 to dealers—Displays, about 50% to dealers	1
Sufficient charge made to discourage careless ordering	1
Total	20

SWIFT FANS
For all purposes
PULLEYS
CAST IRON
Standard designs or made to your specifications.
SWIFT MFG. CO.
formerly
COPE-SWIFT CO.
247 McDougall Ave. Detroit, Mich.

Cincinnati Doll Co. Makes Artificial Food for Atwater-Kent

CINCINNATI—Negotiations for the manufacture of an official artificial food display set were recently concluded by George A. Lyons, sales promotion department, Atwater-Kent Mfg. Co., Philadelphia and Wm. W. Goodman, Cincinnati Doll Co. Display sets are now ready for distribution to Atwater-Kent dealers.

Stone to Sell Electrolux In 2 California Cities

SANTA ROSA, Calif.—The Stone Co., furniture dealers with stores here and at Healdsburg, has been awarded the dealership for Electrolux refrigerators in both cities.

Electrical Equipment Dealers Carrying Larger Stocks

NEW YORK CITY — A six-city breakdown of a report on business conditions in six major markets and jobbing centers recently completed for *Advertising Age* by Ross-Federal Service, Inc., shows that out of 42 electric equipment jobbers answering the same question, 20 reported carrying larger stocks, 4 smaller stocks, and 18 no change.

The six city average increase in size of wholesale stocks of those jobbers reporting an increase was 7.9 per cent for electric equipment.

Wholesale outlets investigated were classified under foods, tobacco, drugs, paint and varnish, electrical equipment, and plumbing and building supplies.

An improvement was reported by 60.98 per cent; a decline in volume by 8.54 per cent; and no change by 30.48 per cent, according to this numerical breakdown.

Table 1—Breakdown Showing Business Conditions by Type of Outlet

	No. of Jobbers	No. Carrying Larger Stocks	No. Carrying Smaller Stocks	No. Change
Food	44	28	1	15
Tobacco	39	17	2	20
Drug	40	19	4	17
Paint, Varnish	40	21	2	17
Electric Equipment	42	20	4	18
Plumbing and Building Supplies	41	11	9	21

Table 2—Breakdown Shows Business Improvement by Cities

	No. interviewed	No. reporting improvement	No. reporting worse business	No. reporting no change
New York	76	50	6	20
Chicago	48	22	5	21
San Francisco	46	36	3	7
St. Louis	24	14	2	8
Minneapolis	24	11	3	10
Atlanta	28	17	2	9
Total	246	150	21	75

EARNINGS

General Motors Corp.

NEW YORK CITY—The twenty-sixth annual report of the General Motors Corp., released to stockholders last week, shows net earnings from operations for the year 1934 of \$94,769,131, equal to 10.3 times the dividends on preferred capital stock for the year, compared with earnings of \$83,213,676 from operations for the year 1933.

Net earnings are after the deduction of a special provision for contingencies of \$5,500,000, equivalent to 13 cents per share of common stock. The earnings also do not include any allowance for the earnings of Adam Opel A. G. for the year, which amounted to RM 13,401,637, equivalent to about \$3,190,866 or 7 cents per share of common stock, if converted at the old par rate of exchange (28.3 cents per reichsmark).

The latter earnings were not in-

cluded in the report because of the present restrictions relative to the transfer of funds from Germany. Total of the above two items is \$8,690,866, equivalent to 20 cents per share of common stock.

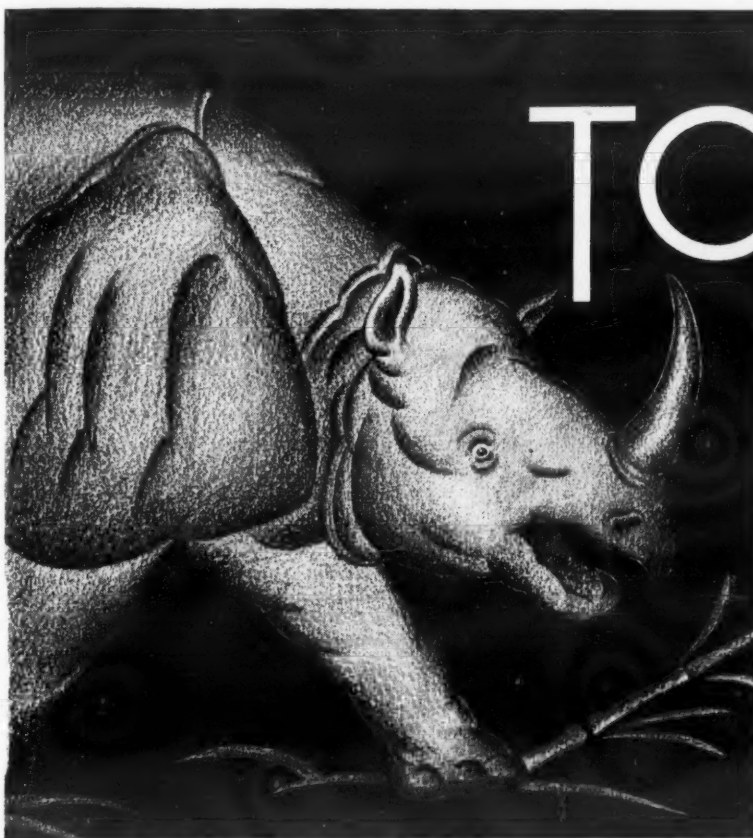
Dividends paid during the year 1934 were \$9,178,220 on preferred stock, leaving \$85,590,911 available for the common stock outstanding, equivalent to \$1.99 per share. This compares with \$74,034,831 or \$1.72 per share available for common stock at the end of 1933.

Dividends of \$1.50 per share were paid on the common stock during the year, consisting of four regular quarterly payments of 25 cents per share and an extra dividend of 50 cents per share on Sept. 12, 1934. This is equivalent to \$64,443,490 distributed to approximately 330,000 common stockholders. Dividends on the common stock in 1933 were \$1.25 per share.

Net working capital as of Dec. 31, 1934, amounted to \$275,645,866, as compared with \$243,832,896 on Dec. 31, 1933. Cash and marketable securities were \$186,966,609 in 1934, compared with \$177,303,966 at the close of 1933. Total depreciation charged during the year was \$32,616,832, an increase of \$2,467,007 over corresponding charges of \$30,149,825 for 1933.

Total sales of cars and trucks to dealers amounted to 1,240,447 units, as against 869,035 units for the year 1933, a gain of 42.7 per cent. Sales to United States dealers totaled 959,494 units, against 729,201 for 1933, a gain of 31.6 per cent. Based on motor car registrations for the year, G-M secured 39.7 per cent of the total new passenger and commercial car volume. The company's proportion of 1933 business was 42.9 per cent.

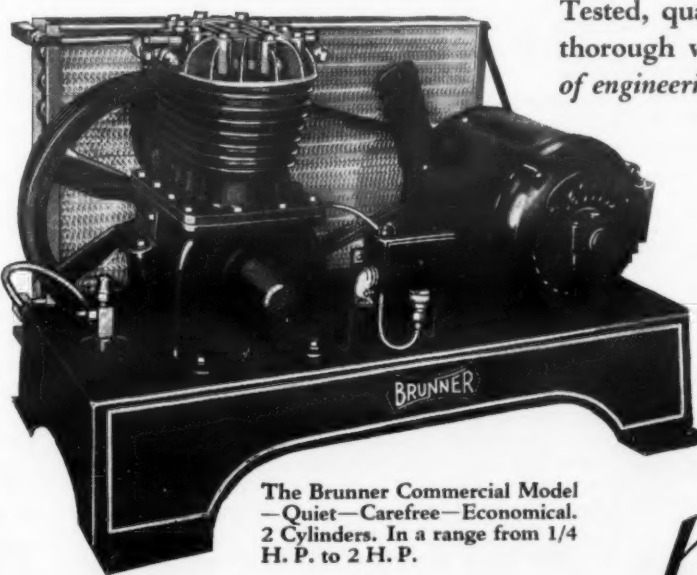
Total payrolls of the corporation increased 53.8 per cent in 1934, reaching \$263,204,225, or \$92,019,910 over the 1933 total of \$171,184,315. The average number of employees during the year was 191,157, compared with an average of 137,764 for 1933.



TOUGH

as a
Charging Rhino

● Tough, dependable units for the industry's toughest refrigeration assignments! Brunner's ruggedness of construction... which is almost a byword wherever refrigeration is discussed... gets its start in the type of materials which go into every Brunner Compressor and Highside. Tested, quality materials, and these backed by thorough workmanship and Brunner's 29 years of engineering experience.



The Brunner Commercial Model—Quiet—Carefree—Economical. 2 Cylinders. In a range from 1/4 H. P. to 2 H. P.

The 1935 Brunner line, designed with larger size compressors and other improvements, brings new efficiency, new quietness, new economy to your refrigeration problems. Eight models of compressors, 41 models of highsides, from 1/6 H. P. to 15 H. P. New catalog with valuable information now ready. Write today for your copy. Brunner Manufacturing Company Utica, N. Y., U. S. A.

Brunner

A NAME BUILT BY 29 YEARS OF SERVICE

ELECTRIC REFRIGERATION NEWS

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Private Brands Again?

APPREHENSION is being expressed in certain quarters these days lest the refrigeration industry again be invaded with private brand merchandise. Remembering their experience with private brand competition a few years ago, some sales managers are doing a little worrying about the possibility of private brands being sold—not by scattered stores, as was the case in 1931 and 1932—but by strong merchandising organizations with wide distribution and many outlets. Fruition of such threats, they believe, will be serious.

Foundation for this anxiety, of course, is the current activity of the nation-wide systems of chain department stores operated by the two big mail-order houses. Having achieved a measure of market dominance in the washing machine retail field, they are apparently hoping to do the same thing in electric refrigeration. As in the washing machine business, their fundamental appeal is low price.

Last year the two mail-order houses were said to have sold (through their chain stores) a combined total close to 100,000 electric refrigerators. So sizeable a chunk of the total business for the year cannot be ignored. Yet, say close analysts of the situation, the sales volume accounted for by the mail-order houses would not bother manufacturers of nationally-known refrigerators so much (the mail-order houses get a class of customers that specialty selling organizations probably wouldn't do much with, anyway) were it not for the effect their prices have on other outlets.

"One of my largest retail outlets sent its buyer to me the other day to ask what we were going to do about this kind of competition," relates the chief refrigeration executive of one substantial manufacturing concern. "His place of business is directly across the street from a Sears-Roebuck store, and every day he is upset by the display of a 6-cu. ft. Coldspot, price-tagged \$139.50, in the window of that store. He wants us to take the nameplate off some of our boxes, cut the discount, and let him have some private brand merchandise with which he might compete with the Sears-Roebuck prices. If we don't give it to him, he says he will drop our franchise and get his refrigerators from some source which will permit him to put his own name on them."

This manufacturer, naturally, will not accede to the request. He has too many dealers and distributors playing the game straight to jeopardize his business by demoralizing theirs. Yet he hates to lose the account, and fears that some other manufacturer may not be so strong-minded when approached with a similar proposition.

A number of reasons for discounting such misgivings and apprehensions may be noted. In the first place, most of the large retail outlets have had some sad experiences with private brand refrigerators. Recently their clamor has been altogether for nationally advertised machines. And they are not anxious to repeat the grief which came their way when they sponsored their own make of refrigerators.

Moreover, the few established manufacturers that went in for private brand jobs on the side had their fingers burned, and probably won't easily be sold on trying it again.

Graybar Electric Co. is the largest electrical distributing organization in the country (excepting, of course, the subsidized distributing organizations controlled by a few of the largest manufacturers). For some years Graybar tried merchandising its own line of appliances. A refrigerator, manufactured by the Ilg company in Chicago, was put on the market. But Graybar officials finally came to the conclusion that this idea was all wrong, and last fall they announced that henceforth the Graybar tag would be tied only to appliances manufactured by national advertisers.

If Graybar, which of all organizations was best equipped and fitted to do a good merchandising job with private brand refrigerators, couldn't make a go of it, smaller merchandisers will probably think twice before rushing in to try it—or so some observers reason it out.

Another circumstance which militates against the reappearance of a number of private brands in the electric refrigeration market is the rising tide of business. One of the chief prime movers in the genesis of private brands a few years back was the large number of outside manufacturers who were becoming desperate because no wheels were turning in their plants. They were ready to make anything that might sell—even if it meant little or no profit—just to keep a nucleus of a factory organization intact.

Today the situation of many of these manufacturers has improved. They are getting orders from the revived automobile industry, and from many other sources. Not so likely are they to seek or accept no-profit business as they were then.

Furthermore, price does not seem to be so important a factor in the mind of the consumer as it was in 1931 and 1932. Features are selling more refrigerators today than price; and the old pride-of-ownership motive, the urge to possess an article known and approved by the neighbors, has again taken its place as one of the chief considerations in the selection and purchase of an electric refrigerator.

In these times many business men are prone to reiterate that "anything can happen." And, of course, a strong movement toward private brand refrigeration is not beyond the bounds of possibility. But so many signs seem to point away from such an occurrence that there would appear to be little cause for alarm among the established manufacturers of nationally known electric refrigerators.

WHAT OTHERS SAY

Too Fast or Too Slow?

WHAT is a poor economic system to do if it can never get anything right, no matter how hard it tries? If it travels fast, it shakes the world to pieces with the jar and vibration of its tempo. If it goes slow and watches its step, it fails to keep pace with the needs of the time, and the social system faces death from maladjustment. The unhappy sufferer is our existing capitalist order.

A new organization in Washington wants to speed up the practical application of new scientific ideas. At present there is too big a "time-lag" between a discovery of invention and its debut on the market. The prospectus of the new organization says that former "practices and customs" in American life have impeded the utilization of new knowledge or new ideas for the common good.

This is where the painful dilemma of our present economic system comes in. It stands bewildered today between two sets of doctors. One group says that the patient's blood pressure and dizziness are due to living too fast. The other doctors say he has not been living fast enough.

Complaints about the profit system and the "time-lag" were familiar in the years before the great crash. It was one of the principal sins of Big Business that it bought up new ideas for the purpose of killing them. New patents were continually being suppressed by large interests which did not want to scrap their heavy investments in plant and machinery. The American people were thus deprived of better goods and services at lower prices in order that profits might be maintained.

But since the crash many analysts have sung a different tune. It is now no trouble to show that our present disasters came because of the terrific speed to which the industrial machine was geared up in a lust for profits. Our present troubles are largely technological, and if technology does not mean new inventions and discoveries what does it mean? Our most distressful condition is supposed to be due chiefly to the fact that the rich make too big profits which they proceed to invest in production, in capital goods—that is to say, in plant machinery. And if that again does not mean new inventions and new efficiency ideas, what does it mean?—*New York Times*.

LETTERS

Why Some Are Not In

Carrier Engineering Corp.
Newark, N. J.

Editor:

This is in reply to your letter of March 20 addressed to Mr. Beach, asking for ratings on our condensing units in accordance with the proposed code.

We cannot give you these ratings for a month or two because, to be accurate, such ratings must be made from tests actually run at the conditions established for rating, and since these conditions vary from those at which we have been accustomed to make our tests, an entire new series will be required. This series is under way, but will take the indicated time to complete.

The rating and test code for air-conditioning units referred to in my letter to you of several months ago, is nearing completion under the authorship of the U.A.C.M.A. and the Joint Committee on Rating Commercial Refrigerating Equipment and should be in shape for presentation in two or three months. I, for one, am sorry that your call for specifications and ratings of air-conditioning units had to come before this code was available. Your specifications do not vary in any really important respect from those intended in the code, but it would have been nice if they could have been drawn with the code as a basis.

DONALD FRENCH.

Curtis Refrigerating Machine Co.
St. Louis, Mo.

Editor:

This is to acknowledge receipt of your form letter of March 20 together with specification sheet for commercial condensing units based on the new method of rating.

While our engineering department is busily engaged in running new tests on all of our equipment they have not yet been completed and, therefore, we would like to know if it wouldn't be possible for you to publish a notice in the April 3 issue to the effect that complete specifications on Curtis commercial condensing units will appear in the next issue of your publication.

We feel quite sure that these new tests will be ready and in your hands in ample time for the next issue, and wish to thank you in advance for this courtesy.

H. C. MORRISON,
Sales Manager.

The Starr Co.
Richmond, Ind.

Editor:

In regard to requested compilation of condensing unit capacities: Wish to advise that we will not be able to get these to you in time for your April 3 issue. However, we will send them forward as soon as they are completed.

FRED GENNETT,
Secretary.

When Is a Lacquer Not a Lacquer?

General Household Utilities Co.
Chicago

Editor:

Mr. Grunow has called my attention to the fact that your publication listed our refrigerators as having a lacquer finish all the way through. Instead they contain Grunow Deluxe baked-on enamel finish.

I am sure this was an oversight on the part of your editor and would appreciate your making the proper correction in a prominent place.

Thank you for so doing.

DUANE WANAMAKER,
Advertising Director.

Misses Electrolux Data

J. H. Patterson Co.
211-213 North Church St.
Rockford, Ill.

Editor:

Enclosed herewith find our check for \$1.00 for which kindly send us 10 copies of ELECTRIC REFRIGERATION NEWS dated March 20, 1935. The one which we want is the one showing specifications of the different makes of electric refrigerators.

We note that the specifications and prices on the Electrolux gas refrigerator are not shown in this publication. We are wondering if you have this information available. If you do we would appreciate receiving same at your earliest convenience.

J. H. PATTERSON, JR.

Answer: Electrolux has never seen its way clear to submitting data on its refrigerator for comparison with household electric refrigerators in the specifications issue of ELECTRIC REFRIGERATION NEWS. A story describing 1935 Electrolux models was published in the Jan. 23 issue.

Zone 1 Prices

Norge Bronx Sales
46 Westchester Square
Bronx, N. Y. City

Editor:

Congratulations, on your comprehensive list of specifications of the various refrigerators published in the March 20 issue!

One item puzzles us, somewhat. We would appreciate explanation of territory covered under, "Zone one installed prices," also if there is any difference between Eastern Zone and Zone one, geographically.

JOHN J. MARLOWE.

Answer: It depends upon the manufacturer's method of zoning. Past experience indicates that in most cases Zone One is the Eastern zone, although we are in no way sure that this holds good for all manufacturers.

Water Cooler History

Ridgway Refrigerator Co.
913-33 North Watts St.
Philadelphia, Pa.

Editor:

The writer wishes to call your attention to the fact that the article in the February 27 issue, on the last page pertaining to a water cooling installation made by the Judson Burns Co., distributor for General Electric in Philadelphia is in error.

The article practically claims credit for the Burns Co. of having introduced the pipe within a pipe ice water circulating system in Philadelphia.

Articles of this nature are used by salesmen to help secure business and when they are misleading the articles are unfair to competition.

The strange part of the story is that the pipe within a pipe system was invented and the first installation of same was made in Philadelphia by the writer in 1929. The first installation was in the Ogontz Exchange of the Bell Telephone Company here.

The Philadelphia Electric Company sold several installations during the time they were distributors for James Spear Stove & Heating Co. of Philadelphia, the manufacturers of the Spear Ice Water Generator.

The writer refers you to your own file during 1929 and 1930 at that time you published many articles describing pipe within a pipe installations around the country. This system was known as the Spear Bi-Pipe system and was sponsored by the Copeland Refrigeration Co. of Detroit. The writer at that time was in charge of designing and the engineering of all Spear products for refrigeration.

VERNON L. FRANK, Sales Manager.

Lists Cost Money

The Spangler Co., Inc.
Refrigeration Supplies
331 Market St., St. Louis, Mo.

Editor:

This will acknowledge your letter of March 5 requesting that we furnish you with a selected list of reliable independent service companies in our area.

Much as we would like to furnish you with this list so that your 1935 REFRIGERATION DIRECTORY will be more complete, we do not deem it advisable to publish the entire list of our customers so that this list of names would be available for use by the numerous refrigeration supply companies springing up throughout the country who are copying the Harry Alter method of merchandising.

I believe that you can realize the importance of this factor, and inasmuch as we have considerable sales expense involved in the locating of these various companies it would certainly be a poor business policy on our part to make available to our competitors a list that is highly desirable.

We like to exhibit a complete spirit of cooperation at all times when the welfare of our business is not at stake.

R. H. SPANGLER.

Pardon Us!

Schiedamsche Werktuigen—
en Machinefabriek
Zuivelwerktuigen en Koeltechniek N.V.
Schiedam

Editor:

Referring to the ELECTRIC REFRIGERATION NEWS of February 13 issue, page 13, letters column, I wish to inform you, that the companies name of which I am a manager is not Zuivelwerktuigen en Koeltechniek N. V. Schiedam, Holland, but Schiedamsche Werktuigen en Machine fabriek—Zuivelwerktuigen en Koeltechniek N. V. Schiedam - Holland. (Translated this name means: 'Schiedam Apparaten and Machine Works—Dairy and Refrigeration Machinery N.V.')

Furthermore I wish to inform you that my private address changed from: J. W. Konig - Hoyledeinsingel 6 - Hilligersberg to: J. W. Konig - Flat-building - Rotterdamsche dijk 256. Schiedam.

I shall be glad, if you would mail the ELECTRIC REFRIGERATION NEWS directly to my new address.

J. W. KONIG.

9 Models Included In Hotpoint Line

(Concluded from Page 1, Column 2)

uses the same two-cylinder, reciprocating compressor used in the General Electric commercial refrigerator line.

The Thrifttype models have hermetically sealed units, stainless steel freezing shelves, wire food rack and food basket, two ice trays, lacquer exteriors and porcelain interiors.

Flat top models have foot pedal door openers, automatic defrosting, stainless steel cooling units, automatic lighting, and G-E commercial type compressors.

The two larger models are of the two-door type, with a vegetable bin in the lower left-hand corner of the cabinet. Other features of these models are six ice and dessert freezing trays, a low temperature compartment for storing frozen foods or desserts, a chiller tray, two refrigerated food drawers, sliding shelves, freezing control, automatic interior lighting, foot pedal door release.

One of the largest of the spring meetings was that held on the roof garden of the Pennsylvania hotel, New York City, sponsored by the General Electric Supply Corp. and the Royal Eastern Electric Supply Co., distributors. Elliott-Lewis Electric Co., Inc., and the General Electric Supply Corp. sponsored another joint meeting in Philadelphia.

Other meetings, with the sponsoring firm and the head of the distributorship, were:

Madison, Wis., Crescent Electric Supply Co. (W. R. Muehl); Quincy, Ill., Crescent Electric Supply Co. (C. A. McMullin); Poughkeepsie, N. Y., Electra Supply Co., Inc. (N. A. Reifler); Albany, N. Y., Havens Electric Co. (H. P. Jones); Syracuse, N. Y., Langdon & Hughes Electric Co. (Leo Meagher); Utica, N. Y., Langdon & Hughes Electric Co. (D. A. Hughes); Williamsport, Pa., Lowry Electric Co., Inc. (F. W. Lowry).

Birmingham, Ala., Matthews Electric Supply Co. (H. W. Matthews); Chicago, Metropolitan Electric Supply Co. (E. W. Getke); Washington, D. C., National Electric Supply Co. (E. M. Graham & R. P. Harrington); Minneapolis, Peerless Electrical Co. (R. H. Parker); Columbia, S. C., Perry-Mann Electric Co. (W. L. Perry); Ft. Wayne, Ind., Protective Electrical Supply Co. (M. B. Larimer); Lancaster, Pa., Raub Supply Co. (G. H. Hartman).

South Bend, Ind., South Bend Electric Co. (W. J. Manby); Wichita, Kan., Sutton Electric Supply Co. (R. M. Sutton); Binghamton, N. Y., Southern Tier Electric Supply Co. (H. M. Long); Charleston, W. Va., Virginian Electric, Inc. (E. D. Knight); Peoria, Ill., Universal Electric Co. (Karl Boggess); Atlanta, Ga., General Electric Supply Corp. (C. R. Pritchard).

Baltimore, General Electric Supply Corp. (H. C. Maccubbin); Boston, General Electric Supply Corp. (W. H. Kaiser); Buffalo, General Electric Supply Corp. (D. B. White); Chicago, General Electric Supply Corp. (A. J. Millington); Cincinnati, General Electric Supply Corp. (R. R. Hand); Cleveland, General Electric Supply Corp. (R. J. Lewis); Dallas, General Electric Supply Corp. (W. M. Goodwin).

Detroit, General Electric Supply Corp. (A. S. Jeseny); Hartford, Conn., General Electric Supply Corp. (R. L. Hanks); Kansas City, General Electric Supply Corp. (M. C. Huie); Omaha, Neb., General Electric Supply Corp. (G. W. Clark); Pittsburgh, General Electric Supply Corp. (R. M. Davis); St. Louis, General Electric Supply Corp. (L. C. Arnold); St. Paul, General Electric Supply Corp. (A. S. Dunning).

568 Dealers at Leonard Chicago Meeting

CHICAGO—Leonard's 1935 line of electric refrigerators was shown to 568 dealers in the Chicago area, largest crowd ever to attend a Leonard dealer meeting, at Hotel Stevens here last week. Sponsor was the L. C. Wiswell Co., Leonard distributor.

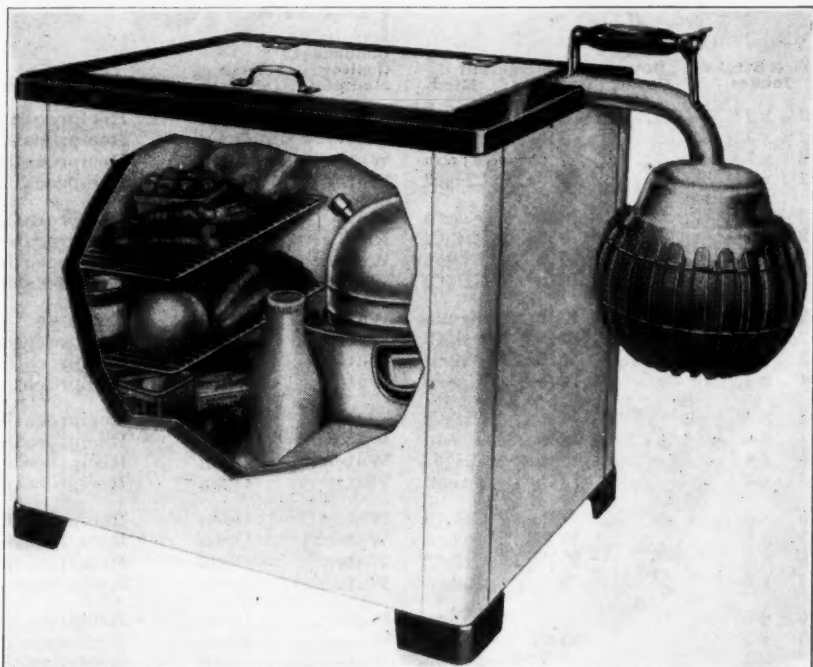
Speakers at the meeting included Godfrey Strelinger, Leonard sales manager; Sam C. Mitchell, advertising manager; Sid Camper, Leonard district manager; C. Farnum Ray, of ReDisCo, and Mr. Wiswell.

CURTIS REFRIGERATION

Commercial & domestic units, 1/6 h.p.—15 h.p.
Distributor franchises available. Write to:
CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Company
1912 Kienlen Ave., St. Louis, Mo.

TEMPRITE
INSTANTANEOUS
BEER and WATER COOLERS
DETROIT - MICHIGAN

Crosley Icyball—1935 Style



Inside and outside of the new edition of the Crosley Icyball absorption-type refrigerator, designed for use where electricity isn't available.

'Miracle Cookery' Is Theme of Hotpoint '35 Advertising

CHICAGO — "Miracle cookery," stressing cooking operations and results obtainable through accurately measured and controlled heat of electricity, is the basic copy theme for advertising of Hotpoint electric ranges to be run in national magazines this month by the Edison General Electric Appliances Co.

Instead of talking about the product features, the Hotpoint copy will describe the simplicity, the ease of electric cookery. One of the features of electric cookery is the oven time control, termed the "chef's brain." The automatic timer clock will be presented to the housewives as a robot chef who watches over cooking operations while housewives are absent.

The 1935 line of Hotpoint domestic ranges includes table top and cabinet models and prices to meet all demands. The new Mayfair model is a deluxe range, of large capacity, compact size, and designed for the built-in kitchen.

Hotpoint newspaper advertising will be placed by public utilities and other retailers throughout the country.

The year-round sales program is composed of five major campaigns: the "get-ready" campaign during the first part of the year; the spring, summer, fall, and Christmas campaigns.

Modernization—the keynote of the spring campaign—has been adapted to electric cookery with the slogan, "Modernize, economize—with electric cookery."

A 24-sheet poster picturing a modern "dream kitchen" has been designed. A rotogravure pictorial of four pages, folders and enclosures, built around the modernization idea, have been prepared.

The Hotpoint home service department will aid newspapers and utilities in conducting cooking schools. Sales training courses for salesmen and service schools for service men will also be features of the program.

Eleven troupes and property sets, comprising Hotpoint's traveling show, "The Load Builders," have been touring the country since early January.

EH&FA Appliances Need Underwriters' Okay

CHICAGO — For the protection of users of electrical appliances in the Tennessee Valley, the EH&FA has specified that all domestic electric refrigerators, electric ranges, and outside circulating water heaters sold in the territory be listed by Underwriters' Laboratories.

The EH & FA requirement is further explained in the specifications as follows:

"No attempt has been made to include features which are covered by the Underwriters' Laboratories standards. Also, no requirements are incorporated which are in conflict with the Underwriters' Laboratories standards."

Kold-Hold & Frigidaire Cools Ice Cream Truck

ROCHELLE, Ill.—Kold-Hold equipment, coupled with a Frigidaire compressor, is used to cool the new 330-gallon Harms Purity Ice Cream truck unit which has recently been put into service in the territory in the vicinity of Rochelle.

The body is insulated with 5 in. of Dry-Zero, and was built by the Batavia Body Co., Batavia, Ill.

New Crosley Icyball Sells for \$59.95

(Concluded from Page 1, Column 3)

and a half, to force the refrigerant into the cold ball.

The cold ball is then placed inside the cabinet, and the refrigerant gradually vaporizes and returns to the hot ball. This action keeps the interior of the refrigerator uniformly cold.

The unit has no moving parts, requires no oiling, has no odor, and is noiseless. The refrigerant needs no replenishing.

The Icyball, say Crosley engineers, is capable of holding a temperature between 50° F. and 34° F. for a period of from 18 to 24 hours. Where it is used to refrigerate bottled drinks, the refrigerating unit is placed in water which serves as a temperature equalizer and hold-over for refrigeration. Amount of water used is in proportion to the amount of refrigeration that can be supplied by the Icyball. The size of the container regulates the maximum low point of temperature.

Judson C. Burns Opens Range Rental Drive

PHILADELPHIA — To inaugurate the second half of the Philadelphia Electric Co.'s range renting campaign, 889 executives and salesmen of the electric company attended the meeting held recently by Judson C. Burns, General Electric distributor here.

Features of the meeting were a demonstration of General Electric ranges by Jack Poteat and Fred Cuff of the General Electric Co., Cleveland, and a talk by Austin Monty, sales manager of the Philadelphia Electric Co.

Kansas City Sales in First 2 Months Gain

KANSAS CITY—Sales of domestic electric refrigerators in the Greater Kansas City area for January and February were 47½ per cent ahead of the same period for 1934, according to statistics gathered by the Electric & Radio Association of Kansas City.

During the first two months of the year, 2,708 refrigerators were sold by dealers in the area, compared with 1,836 for the same period last year. January sales totaled 1,293 units, compared with 690 in 1934, and February sales were 1,415, against 1,146 in 1934.

The association also announces the winners in the window display contest for Kansas City refrigeration dealers, as follows:

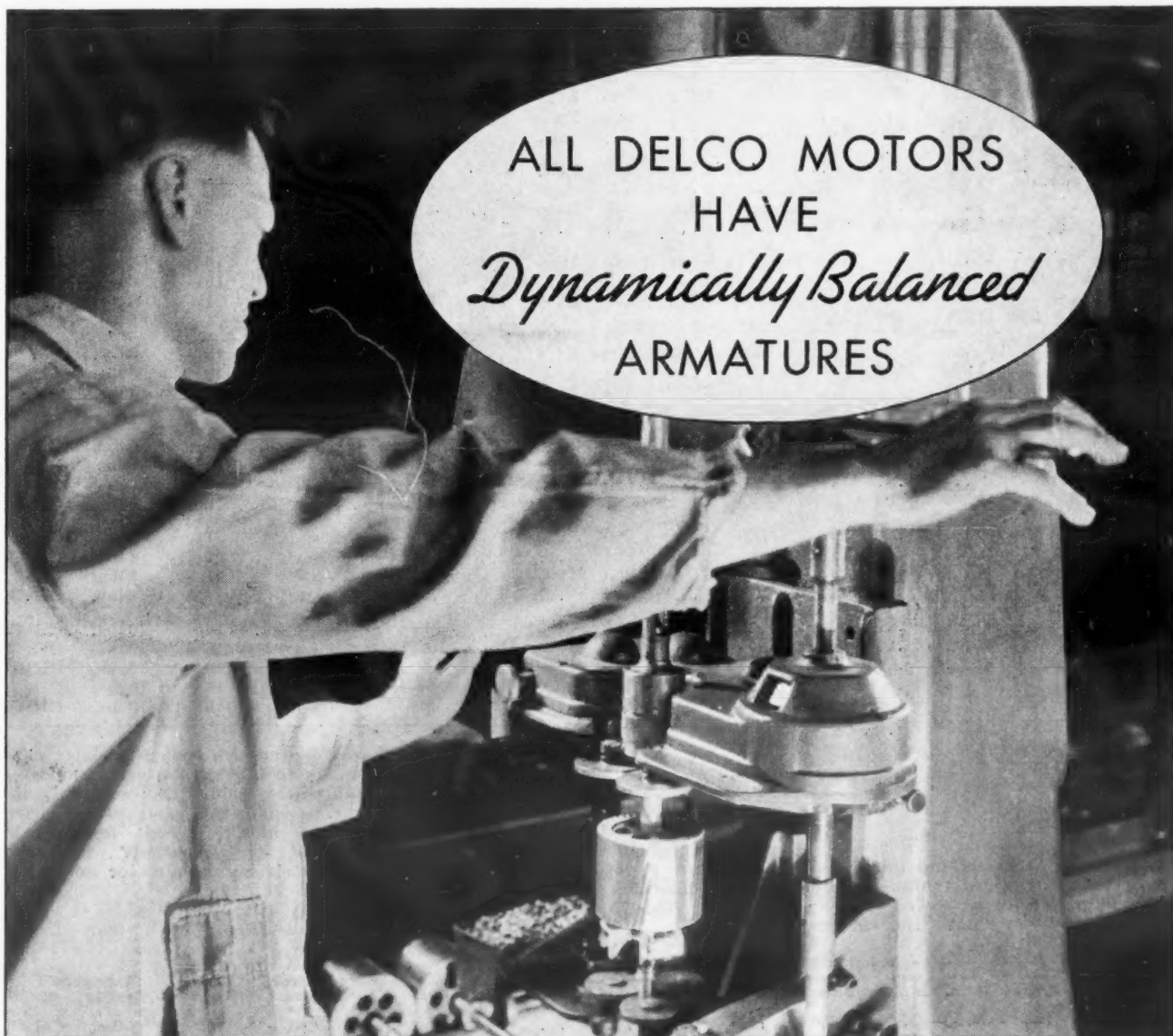
Downtown Stores: First prize, Rudolph Wurlitzer Co.; second, Jenkins Music Co.; third, Duff & Repp.

Outlying Stores: First prize, Blue Seal Appliance Co.; second, Burton J. Pierce Co.; third, Glenn Carter.

Copy for educational advertising of the association has been focused on the statement that one out of two Kansas City families has electric refrigeration. The statement is based on the number of families in the city, taken from government census, and reports received from the distributors on the number of household units in service (single residences and apartment units).

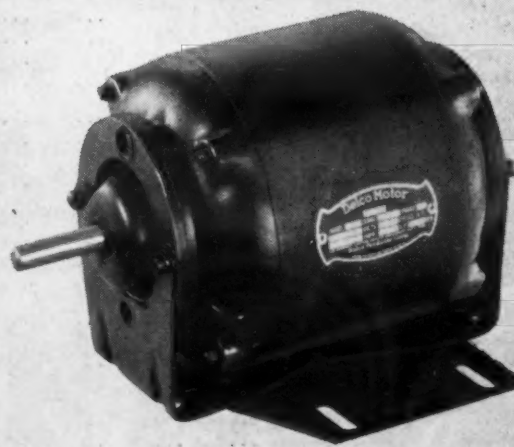
Pierce Electric Handles Norge in Vallejo, Calif.

VALLEJO, Calif.—The Pierce Electric Co. has been appointed dealer for Norge electric refrigerators in Vallejo and vicinity by the Leo T. Meyberg Co., Norge distributor. Ed Pierce is head of the dealer firm.



To insure the quiet operation so essential in an electric appliance, rotating parts must be absolutely free from vibration, which means they must be in perfect running or "dynamic" balance, as well as in static balance. In Delco motors, dynamic balance is assured by testing armatures on a special machine. This special machine, developed by Delco engineers after many years of research and experiment, quickly and accurately checks the balance of every Delco motor armature at running speed. As a result, Delco motors run without vibration and without noise—a fact which explains why Delco motors are so widely used on motor driven appliances.

DELCO PRODUCTS CORPORATION, DAYTON, OHIO
Made in Canada by the McKinnon Industries, Ltd., St. Catharines, Ont.



DELCO MOTORS

Reliance

Reliance Refrigerating Machine Co., Inc., Chicago, Ill.

Compressor—Bellows shaft seal. Splash-type lubricating system. Oil level measured by sight glass.

Condenser—Air-cooled models, fin

tube. Water-cooled models: shell and tube. Fin tube condensers in back of unit, shell and tube condensers under base.

Liquid Receiver—Horizontal type. All models have refrigerant filter.

Valves—Disc-type intake and discharge valves.

Controls—Minneapolis-Honeywell pressure control. All models have high pressure cutout. Pressure operated metering type water regulating valve.

Model No.	Refrigeration		Capacity*		Motor		No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches					
	40° R.p.m.	B.t.u.	23° R.p.m.	B.t.u.	5° R.p.m.	B.t.u.										-13° R.p.m.	B.t.u.	Quantity			
FCBA-100	360	10,225	...	...	...	...	1	2	2 1/4 x 1 1/4	...	5 lbs. Freon	Air	Open	Reciprocating	Belt	...	34	x 16	x 24		
MCBA-100	...	...	300	5,788	300	3,856	300	2,506	1	2	2 1/4 x 1 1/4	...	5 lbs. CH ₃ Cl	Air	Open	Reciprocating	Belt	...	36	x 19	x 24
FCBW-100	450	12,780	...	...	...	...	1	2	2 1/4 x 1 1/4	...	8 lbs. Freon	Water	Open	Reciprocating	Belt	...	34	x 16	x 24		
MCBW-100	...	...	...	...	...	...	1	2	2 1/4 x 1 1/4	...	5 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	36	x 19	x 24		
FDCA-150	300	15,336	...	...	...	...	1 1/2	2	2 1/2 x 2 1/4	...	10 lbs. Freon	Air	Open	Reciprocating	Belt	...	48	x 19	x 30		
MDCA-150	...	...	230	6,972	230	4,648	230	3,012	1 1/2	2	2 1/2 x 2 1/4	...	10 lbs. CH ₃ Cl	Air	Open	Reciprocating	Belt	...	48	x 23	x 30
FDCW-150	375	19,170	...	...	...	...	1 1/2	2	2 1/2 x 2 1/4	...	10 lbs. Freon	Water	Open	Reciprocating	Belt	...	48	x 19	x 30		
MDCW-150	...	...	...	...	...	...	1 1/2	2	2 1/2 x 2 1/4	...	10 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	48	x 23	x 30		
FDCW-200	500	24,080	...	...	...	...	2	2	2 1/2 x 2 1/4	...	12 lbs. Freon	Water	Open	Reciprocating	Belt	...	48	x 19	x 30		
MDCW-200	...	...	380	10,893	380	7,262	380	4,720	2	2	2 1/2 x 2 1/4	...	10 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	48	x 19	x 30
FCCW-300	410	36,300	...	...	...	...	2	2	3 x 3	...	14 lbs. Freon	Water	Open	Reciprocating	Belt	...	48	x 21	x 33		
FEW-500	300	60,810	...	...	...	...	5	2	4 x 4	...	14 lbs. Freon	Water	Open	Reciprocating	Belt	...	66	x 30	x 42		
MEW-500	...	...	300	36,120	300	24,080	300	15,652	5	2	4 x 4	...	14 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	66	x 30	x 42
FEW-750	450	90,430	...	...	...	...	7 1/2	2	4 x 4	...	16 lbs. Freon	Water	Open	Reciprocating	Belt	...	66	x 34	x 42		
MEW-750	...	...	450	54,195	450	36,130	450	23,485	7 1/2	2	4 x 4	...	16 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	66	x 34	x 42
FGW-1000	300	121,030	...	...	...	...	10	2	5 x 5	...	16 lbs. Freon	Water	Open	Reciprocating	Belt	...	72	x 33	x 52		
MGW-1000	...	...	300	72,240	300	48,160	300	31,304	10	2	5 x 5	...	16 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	72	x 33	x 52
FGW-1500	450	181,540	...	...	...	...	15	2	5 x 5	...	20 lbs. Freon	Water	Open	Reciprocating	Belt	...	96	x 33	x 52		
MGW-1500	...	...	450	108,720	450	72,480	450	47,112	15	2	5 x 5	...	20 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	96	x 33	x 52
FKW-2000	330	242,060	...	...	...	...	20	2	7 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	90	x 37	x 58	
FG-4W-2000	320	242,060	...	...	320	119,980	...	20	4	5 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	78	x 50	x 58
MG-4W-2000	...	...	300	144,480	300	96,320	300	62,608	20	4	5 x 5	...	25 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	72	x 50	x 52
FKW-2500	410	302,570	...	...	410	150,140	...	25	2	7 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	108	x 37	x 58
FG-4W-2500	400	302,570	...	...	400	150,140	...	25	4	5 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	108	x 50	x 58
MG-4W-2500	...	...	375	180,600	375	120,400	375	78,260	25	4	5 x 5	...	25 lbs. CH ₃ Cl	Water	Open	Reciprocating	Belt	...	96	x 50	x 52
FI-4W-3000	400	362,080	...	...	400	179,880	...	30	4	5 1/2 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	126	x 50	x 58
FK-4W-4000	330	484,120	...	...	330	239,960	...	40	4	7 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	78	x 62	x 58
FK-4W-4000A	330	484,120	...	...	330	239,960	...	40	4	7 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	142	x 62	x 58
FK-4W-5000	410	605,140	...	...	410	300,280	...	50	4	7 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	108	x 62	x 58
FK-4W-5000C	410	605,140	...	...	410	300,280	...	50	4	7 x 5	...	...	Freon	Water	Open	Reciprocating	Belt	...	198	x 62	x 58

*Capacities given with 95° F. room temperature for air-cooled models, and 76° F. inlet water for water-cooled models.

Zerozone

Zerozone Corp., Detroit, Mich.

Compressor—Sylphon shaft seal. Cylinder head cooled by air on all AB models WB3333, WB3350, WB3450,

and WB3475; all others, by water. Splash-type lubricating system. Oil level measured by oil level plug. Type of compressor oil: Argon, viscosity, 300.

Valves—Disc intake valve, reed discharge valve.

Liquid receiver—Horizontal type. Water-cooled models have fusible safety plug. All models have refrigerant filter.

Condenser—A models: fin tube. W models: all but WB3333 and WB3450, double tube.

out. Thermal overload cutout. Condensing water flow controlled by condensing pressure. Penn and Riley water regulating valve.

Materials used—Cylinder block and pistons: semi-steel. Condenser tubing: copper. Condenser shell: steel.

Controls—Penn pressure or temperature control. All but models AB1416 and AB2425 have high pressure cut-

Special features—SW models designed for use with counter-type ice cream freezers.

Model No.	40°		20°		5°		-10°		Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches		
	R.p.m.	B.t.u.	R.p.m.	B.t.u.	R.p.m.	B.t.u.	R.p.m.	B.t.u.												Quantity	Kind	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Length	Width	Height
AB-1416	...	...	360	708	360	600	360	474	¼	1	1½ x 1½	2½	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	¾ pts.	21	x 17	x 16
AB-2425	...	...	360	1,470	360	1,272	360	1,122	¼	1	2 x 1½	2½	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	21	x 17	x 16
AB-3333	...	...	...	...	300	2,010	300	1,458	¼	2	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	28½	x 17½	x 19
AB-3350	300	3,900	300	2,664	...	...	...	...	½	2	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	28½	x 17½	x 19
AB-3450	...	...	...	...	440	2,928	440	1,950	½	2	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	28½	x 17½	x 19
AB-3475	440	5,748	440	4,008	...	...	...	...	¾	2	2 x 1½	20	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	28½	x 18	x 19
AB-4375	...	...	...	...	285	3,696	285	2,448	¾	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	4 pts.	37	x 22	x 25½
AB-43100	285	8,400	285	5,508	...	...	...	...	1	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	4 pts.	37	x 22	x 25½
AB-44100	...	...	...	...	370	5,100	370	3,582	1	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	4 pts.	37	x 22	x 25½
AB-44150	370	11,460	370	7,260	...	...	...	...	1½	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	4 pts.	37	x 22	x 25½
AB-53150	...	...	...	...	280	7,710	280	5,604	1½	2	2¾ x 3¼	21½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	8 pts.	43	x 25½	x 27½
AB-53200	280	17,160	280	10,920	...	...	...	...	2	2	2¾ x 3¼	21½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	8 pts.	43	x 25½	x 27½
WB-3333	...	...	...	...	300	2,040	300	1,476	¼	2	2 x 1½	18	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	1¾ pts.	28½	x 14¾	x 18½
WB-3350	300	3,990	300	2,760	...	...	...	...	½	2	2 x 1½	18	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	1¾ pts.	28½	x 14¾	x 18½
WB-3450	...	...	...	...	440	2,970	440	2,022	½	2	2 x 1½	18	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	1¾ pts.	28½	x 14¾	x 18½
WB-3475	440	6,090	440	4,080	...	...	...	...	¾	2	2 x 1½	18	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	1¾ pts.	28½	x 14¾	x 18½
WB-4375	...	...	...	...	300	3,756	300	2,718	¾	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 pts.	37	x 22	x 24½
WB-43100	300	8,700	300	5,640	...	...	...	...	1	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 pts.	37	x 22	x 24½
WB-44100	...	...	...	...	390	5,172	390	3,696	1	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 pts.	37	x 22	x 24½
WB-44150	390	11,520	390	7,350	...	...	...	...	1½	2	2¼ x 2½	16½	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 pts.	37	x 22	x 24½
WB-53150	...	...	...	...	310	7,770	310	5,640	1½	2	2¾ x 3¼	21½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8 pts.	43	x 25½	x 27½
WB-53200	310	17,280	310	11,130	...	...	...	...	2	2	2¾ x 3¼	21½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8 pts.	43	x 25½	x 27½
WB-54200	...	...	...	...	425	10,500	425	6,900	2	2	2¾ x 3¼	21½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8 pts.	43	x 25½	x 27½
WB-54300	425	22,620	425	15,720	...	...	...	...	3	2	2¾ x 3¼	21½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8 pts.	43	x 25½	x 27½
SW-4375-IC	...	...	...	...	375	4,410	375	3,180	¾	2	2¼ x 2½	16½	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 pts.	30	x 19½	x 25½
SW-44100-IC	...	...	...	...	470	5,700	470	3,960	1	2	2¼ x 2½	16½	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 pts.	30	x 19½	x 25½
SW-46150-IC	...	...	...	...	615	8,520	615	5,850	1½	2	2¼ x 2½	16½	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 pts.	30	x 19½	x 25½
SW-53150-IC	...	...	...	...	375	9,240	375	6,150	1½	2	2¾ x 3¼	16½	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8 pts.	30	x 19½	x 27½
SW-54200-IC	...	...	...	...	470	11,460	470	7,680	2	2	2¾ x 3¼	16½	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8 pts.	30	x 19½	x 27½

Gibson

Gibson Electric Refrigerator Corp., Greenville, Mich.

Compressor—Bellows and lubricated ring type shaft seal. Cylinder head cooled by air on all air-cooled models; water on "W" or "AW" models ex-

COMMERCIAL REFRIGERATION

Davis Tells How Carrier Sold & Installed Large Order for U.S. Relief Centers

NEWARK—How the Brandeis Machinery & Supply Co., Carrier dealer in Louisville, Ky., obtained the order for refrigeration equipment in beef storage houses in Government Relief centers in Kentucky, and installed the equipment in the specified time, was described to Carrier officials recently by W. J. Davis of the Brandeis company.

The federal government purchased several thousand head of cattle throughout the central west during July and August of last year, on account of the drought. Several states were allotted part of these cattle to be given to relief cases. Kentucky was allotted 200,000 head.

The set up for relief in Kentucky is similar to that of other states, and is supervised by the federal government. Any purchase of this size, of course, had to be approved by federal officials.

Contact Commodity's Issue

State relief headquarters are located in Louisville. The administration consists of a board of five citizens and an administrator. The Brandeis company's contact in connection with this sale was with the Commodity Division and Work Division.

The Commodity Division's duties are to see that commodities are properly distributed to the relief centers, and from the relief centers to the relief cases. The Work Division's duties are to supervise different work projects. This department is made up almost entirely of civil engineers.

Distribute Fresh Meat

When the allotment of cattle was made to the state, the Commodity Division estimated the amount of beef they wished to give to each case each week. They decided to supply fresh meat instead of canned meat, as in other states.

Each relief center is located in the county seat town of each county, and this relief center has on its rolls a certain number of cases for direct relief. It was estimated that they would require in some centers 5,000 pounds of fresh beef per week, in others 15,000 pounds, and in larger centers 30,000 pounds.

The state relief administration secured a lease on a packing house in Louisville, and also made arrangements with four other packing houses in the state to prepare this meat for

shipment. It is being shipped out in 100-pound boxes by refrigerated trucks.

The Work Division was given an assignment to provide refrigeration at the 84 centers with three different sizes of refrigerators. One was to take care of 5,000 pounds of meat.

As soon as this assignment was made, a small notice was published in one of the Louisville daily papers that the engineers were designing refrigerators for this purpose. Brandeis salesmen contacted the head of the Work Division, and were advised the manner in which the fresh beef was to be handled. Then they prepared designs for these refrigerators; and estimated the refrigeration equipment needed. Drawings of these refrigerators were submitted to the Work Division and an estimated cost of the refrigeration equipment was made.

Salvage Cost Estimated

Approximate operating costs, and the approximate salvage of the mechanical equipment at the end of a two-year period, were offered. A representative of the national cork sales organization was called in, and he also submitted a design on coolers.

By working with the engineers of the Work Division the first cost of mechanically refrigerated coolers, together with operating costs, were worked up; also first cost of coolers using ice and their operating costs were figured. These figures were submitted to Washington by telephone.

Approve Mechanical Equipment

The use of mechanical equipment was approved. Specifications were prepared by engineers of the Work Division, using manufactured boxes for the small cooler, and boxes built on the premises, with relief labor, for the two larger coolers. Bids were asked for on the mechanical equipment for these coolers.

"Our first contact with the Work Division was made on a Monday morning and the bids were opened on the following Saturday noon," recalls Mr. Davis. This will give you some idea of how fast they were working in order to get fresh beef into the hands of the needy.

"The other bidders on this project were York, Baker, Frigidaire, General Electric, Reliance, and Williams Oil-O-Matic.

"In preparing our bid we named a certain price on each of the different

size boxes. Specifications were such that the engineers could select any one size from one bidder. We also put in an addendum, offering a discount from the prices bid, providing we were awarded the whole contract.

"When the bids were opened, Frigidaire was low on the 5,000 pound box. General Electric was low on the 15,000 pound box, and York was low on the 30,000 pound box.

"By making a recap of all of their bids, and by taking our bid and deducting the discount we offered on the total contract, we were \$2.06 low on the contract of approximately \$45,000.

"On account of the small amount of difference in the bids they felt that they could secure better delivery and a quicker installation by buying from the three bidders rather than awarding the contract to one contractor.

"Delivery dates were given by the three low bidders, and we were asked to give them the best delivery date we could make on the whole contract. We called the factory and were advised that they could ship one carload of equipment in five days and the balance within ten days.

Install Five Each Day

"We gave a guarantee that we could install the equipment on a basis of five refrigerators a day, which was a great deal faster than they could secure cork and build the boxes.

"We gave the Work Division engineers the names of several users of Brunswick equipment, which had been installed in some cases for 15 to 20 years. We attempted to sell them on our service set up for giving service on this equipment after it was installed.

"We were awarded the contract, but current characteristics were not specified inasmuch as the brief time in which this was handled would not permit them to send engineers out to determine locations.

"They sent a corps of engineers throughout the state to select locations, and determine what current

characteristics were available. It was found that in some relief centers it was not possible to secure reliable electric current; also some places were found where condensing water was not available.

"It was necessary then to change locations to some towns where current was available and to change water-cooled compressors to air-cooled compressors.

"In these cases the 15,000 pound box was installed, using 2½-hp. air-cooled compressors instead of the 2-hp. water-cooled compressor.

"Our contract covered a total of 84 installations: 24 for the 5,000 pound box, 38 for the 15,000 pound box, and 22 for the 30,000 pound box. The equipment consisted of 98 compressors and 159 of the 1,400 series cold diffusers. The amount of the contract was \$47,315.

Installation Problems

"Our next problem was to get this equipment installed at a cost within our estimate. These relief centers are scattered from Western Kentucky points on the Mississippi River to the Ohio, West Virginia, and Virginia state lines. Some of these relief centers are in the mountains in eastern Kentucky.

"It was decided to send out several crews of men to make these installations, each crew to consist of one mechanic and a helper. We were required to make electrical connections and wire up our diffusers, so we employed an electrician's helper to work with the mechanic.

"We also decided to have an inspector follow up each installation after it was made, to be sure it was put in according to our specifications.

"In order that every installation would be standard, we made up blueprints of the three different type jobs. All installation material was assembled in our warehouse in Louisville, and a sufficient amount for each job was packed in cartons for shipment to these points.

"These boxes contained all the necessary tubing, fittings, B.X. cable, switches, expansion valves, and miscellaneous small items such as wood screws, nails, B.X. connectors, pipe straps, etc.

"All equipment was shipped to Louisville in carload lots from the factory, and was reshipped from Louisville, with the installations material, to the relief centers by truck line.

Three Crews Sent Out

"Each crew was given an assignment of certain installations to make each week. This assignment was mailed to reach them on Saturday for the following week.

"We sent the first crew out on Oct. 15. The second crew went out on Oct. 25, and the third crew went out on Oct. 30. All crews returned to Louisville when the job was completed by Dec. 1. The average crew days per box was 1.35.

"Just as soon as an installation was completed, the mechanic wired the office, and proceeded to the next job. The inspector followed the crew within two or three days, and wired in his O.K. We immediately notified headquarters, and a shipment of fresh beef was dispatched to this point.

"At the end of each week, billing was sent through to the state headquarters for the jobs installed the previous week. Payment was received within six days.

"We are now handling the service on these 84 installations with one man. The only complaints that we have had of any consequence have been about temperatures, says Mr. Davis.

"We found in the majority of cases," he explains, "that the temperature was satisfactory, but that the thermometers which were being used were not accurate. So we had the Kentucky Emergency Relief Administration purchase thermometers, which have been sent out and are now in the coolers. Thus this type of service call has been reduced," he concludes.

Bonderite
A PARKER PROCESS
THAT HOLDS PAINT
FINISHES TO STEEL
AND PREVENTS RUST

Selling Facts
for the Refrigerator Salesman

THE salesman who sells a Bonderized refrigerator has a tremendous advantage over the line produced with less careful finishing methods.

But, do you know all the facts about Bonderizing? If not, there is a quick and easy way to inform yourself. Find out how it is applied and why it holds enamel or lacquer finishes many times longer than when applied over bare metal.

PARKER RUST PROOF COMPANY • 2197 E. MILWAUKEE AVE. • DETROIT, MICH.

The Parker Processes are the result of more than 19 years of research in scientific metal protection. Literature describing these processes will be sent, upon request, to interested manufacturers and technical men.

A new book showing the results of scientific tests with charts and enlarged photographs illustrating the effects of rust under varying conditions, and the protection afforded by Bonderizing, is available. It shows why Bonderizing "Holds paint to Steel" and prevents corrosion. Copies of this book will be sent to refrigeration salesmen who are interested in being fully posted on this valuable sales point.

PARKER
RUST-PROOFING
processes
BONDERIZING • PARKERIZING

PURER
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VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

F. A. Eustis, Sec'y, Virginia Smelting Co., 131 State St., Boston, Mass.
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Dicler

Deissler Machine Co., Greenville, Pa.

Compressor—Balanced bellows shaft seal. Cylinder head cooled by air in air-cooled models, water in water-

cooled models. Splash on centri-force lubricating system. Oil level measured by sight gauge in 6000 series, in all other models by oil level plug. Type of compressor oil: mineral.

Liquid Receiver—Horizontal type. Models 4500-MA and larger have fus-

ible safety plug. All models have refrigerant filter.

Condenser—Air-cooled models: fin tube. Water-cooled models: double tube.

Materials Used—Cylinder block and

pistons: nickel iron. Condenser tubing: copper.

Controls—Penn or Minneapolis-Honeywell pressure control. All water-cooled models, and all air-cooled models in 4000 series and larger have high pressure cutout. Condensing

water flow controlled by condensing pressure. Deissler water regulating valve.

Valves—Disc-type (spring loaded) intake valves and disc-type discharge valves.

Model No.	Refrigeration Capacity				Refrigeration Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches
	40° R.p.m.	B.t.u.	20° R.p.m.	B.t.u.	10° R.p.m.	B.t.u.	5° R.p.m.	B.t.u.												
400-MA	325	1,958	325	1,360	425	986	510	608	1/4	1	1 1/2 x 1 1/2	3	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	17 1/2 x 14 1/2 x 12
800-MA	375	2,385	375	1,496	475	1,110	590	725	1/4	1	1 1/2 x 1 1/2	3	2 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	17 1/2 x 15 1/2 x 12
1600-MA	290	2,960	290	2,140	340	1,750	385	1,520	1/4	2	1 1/2 x 1 1/2	5	3 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 pts.	21 x 18 x 18 1/4
2600-MA	325	3,285	325	2,310	385	1,875	480	1,655	1/4	2	1 1/2 x 1 1/2	8	3 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 1/2 pts.	21 x 19 x 20
2600-MW	375	4,120	375	2,820	425	2,220	525	1,710	1/2	2	1 1/2 x 1 1/2	8	3 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2 1/2 pts.	22 1/2 x 20 x 20
2800-MA	425	5,745	425	3,990	525	3,325	590	2,600	1/2	2	1 1/2 x 1 1/2	8	4 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3 pts.	25 x 18 x 18 1/2
2800-MW	475	6,486	475	4,325	575	3,620	625	2,805	1/2	2	1 1/2 x 1 1/2	8	4 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3 pts.	27 1/2 x 20 x 17
3800-MA	325	7,975	325	5,565	385	4,620	480	3,775	3/4	4	1 1/2 x 1 1/2	12	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	4 1/2 lbs.	28 1/2 x 20 1/2 x 22
3800-MW	375	9,630	375	6,840	425	5,625	525	4,310	3/4	4	1 1/2 x 1 1/2	12	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	4 1/2 lbs.	31 x 24 x 19
3900-MA	425	12,290	425	8,800	525	6,630	590	5,445	1	4	1 1/2 x 1 1/2	12	5 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	5 lbs.	30 x 21 1/2 x 25
3900-MW	475	15,535	475	9,995	575	8,120	625	6,400	1	4	1 1/2 x 1 1/2	12	5 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	5 lbs.	31 x 25 x 21
4000-MA	325	16,980	325	12,710	385	9,875	480	8,215	1 1/4	4	2 x 2 1/2	16	5 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	5 1/2 lbs.	30 1/2 x 22 x 25
4000-MW	375	23,250	375	16,380	425	12,900	525	9,925	1 1/4	4	2 x 2 1/2	16	5 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	5 1/2 lbs.	31 1/2 x 25 1/2 x 22
4500-MA	425	19,360	425	15,755	525	12,725	590	10,475	2	4	2 x 2 1/2	26	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	8 lbs.	35 1/2 x 25 1/2 x 26
4500-MW	475	28,745	475	19,625	575	15,220	625	11,960	2	4	2 x 2 1/2	26	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	8 lbs.	37 1/2 x 27 1/2 x 22 1/2
5000-MW	375	40,160	375	27,385	425	21,900	525	17,850	3	2	3 x 3	26	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	10 lbs.	37 1/2 x 27 1/2 x 24
6000-MW	325	61,344	325	39,528	485	28,032	590	19,225	5	4	3-1/16 x 3 1/4	70	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	...	59 x 33 x 33 1/2
6400-MW	485	107,136	485	68,256	590	46,080	650	25,344	7 1/2	4	3-1/16 x 3 1/4	90	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	...	59 x 33 x 36 1/2
6800-MW	590	122,544	590	85,536	650	56,448	725	33,552	10	4	3-1/16 x 3 1/4	90	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	...	59 x 33 x 36 1/2

Frick

Frick Co., Waynesboro, Pa.

Compressor—Cylinder head cooled by air. Splash-type lubricating system.

Condenser—Air-cooled models: fin tube. Water-cooled models: double coil.

Liquid Receiver—Horizontal type: Models F-1002 and larger have fusible safety plug.

Controls—Cutler-Hammer pressure control. All models have high pres-

sure cutout. Condensing water flow controlled by head pressure. Penn water regulating valve.

Valves—Disc-type intake and discharge valve.

Materials Used—Cylinder block and pistons: cast iron. Condenser tubing: copper.

Model No.	Refrigeration Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches
	40° R.p.m.	20° R.p.m.	15° R.p.m.	10° R.p.m.												
F-251	320	112.8	...	...	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3/4 pt.	14 1/2 x 24 x 19 1/2
F-332	320	249.6	...	...	3 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3 pts.	16 x 24 x 19 1/2
FW-332	320	324.0	...	...	3 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	3 pts.	16 x 24 x 19 1/2
F-502	320	422.4	...	...	4 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3 pts.	18 x 29 1/2 x 21 1/2
FW-502	360	537.6	...	...	4 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	3 pts.	18 x 29 1/2 x 21 1/2
F-752	320	508.8	...	...	4 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3 pts.	19 1/2 x 32 x 25
FW-752	385	643.2	...	...	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	3 pts.	19 1/2 x 32 x 25
F-1002	275	835.2	...	...	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	23 1/2 x 36 1/2 x 28
FW-1002	320	972.0	...	...	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	23 1/2 x 36 1/2 x 28
F-1502	320	957.6	...	...	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	23 1/2 x 36 1/2 x 28
FW-1502	400	1156.8	...	...	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	25 x 38 1/2 x 30 1/2
FW-2003	400	2016.0	...	...	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	8 pts.	23 x 51 x 29
FW-3003	480	2844.0	...	...	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	8 pts.	23 x 51 x 29
F-2002	400	2016.0	...	...	11 1/2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	25 x 38 1/2 x 30 1/2
FW-2002	400	2016.0	...	...	11 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	25 x 38 1/2 x 30 1/2
FW-5003	470	4812.0	...	...	19 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	9 pts.	25 x 52 1/2 x 32
FW-7503	345	8160.0	...	...	17 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	32 1/2 x 65 x 36 1/2
FW-1003	400	9120.0	...	...	17 1/2 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	32 1/2 x 67 x 36 1/2
FW-15003	19 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	32 1/2 x 67 x 36 1/2

*Capacity given in lbs. I.M.E. per 24 hours with a suction gas pressure corresponding to a temperature of 15° F. measured in the crankcase, and discharge room for air-cooled units and 80° F. water for water-cooled units.

Nash

Nash Refrigeration Co., Inc.
Newark, N. J.

Compressor—Bellows shaft seal.

Cylinder head cooled by air or water. Splash-type lubricating system. Oil level measured by plug. Spica compressor oil, with viscosity of 10.

Condenser—Air-cooled models: radiator type. Water cooled: double tube.

Condenser located opposite motor.

Liquid Receiver—Horizontal type. All models have fusible safety plug and refrigerant filter.

Materials Used—Cylinder block:

semi-steel. Pistons: cast iron. Condenser tubing: copper.

Controls—Penn pressure or temperature control. All water-cooled models, and air-cooled models over 1/2 hp. have high pressure cutout. Square D,

Allen-Bradley, or Cutler-Hammer overload cutout. Penn water regulating valve.

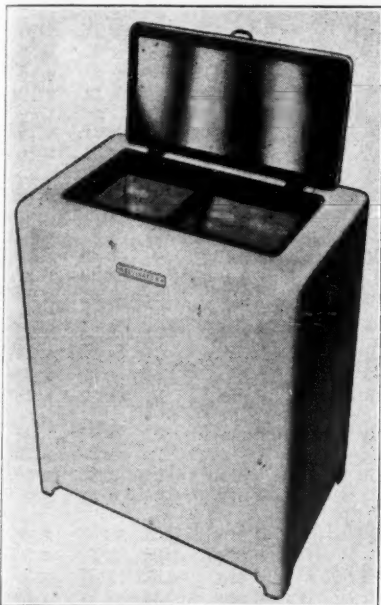
Valves—Disc-type intake and discharge valves.

Model No.	Refrigeration Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches
	40° R.p.m.	20° R.p.m.	15° R.p.m.	10° R.p.m.												
33-A	300	327	...	...	...	...	1 1/2 x 2	7	4 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 1/4 pts.	30 x 22 x 22
33-W	390	420	...	...	...	...	1 1/2 x 2	7	4 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2 1/4 pts.	30 x 22 x 22
50-A	390	451	...	...	...	...	1 1/2 x 2	7	4 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	2 1/4 pts.	30 x 22 x 22
50-W	465	564	...	...	...	...	1 1/2 x 2	7	4 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	2 1/4 pts.	30 x 22 x 22
75-A	320	713	...	...	...	...	2 1/4 x 2 1/4	11	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3 1/4 pts.	30 x 22 x 22
75-W	380	948	...	...	...	...	2 1/4 x 2 1/4	11	6 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3 1/4 pts.	30 x 22 x 22
100-A	395	907	...	...	...	...	2 1/4 x 2 1/4	11	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3 1/4 pts.	35 x 30 x 25
100-W	470	1,186	...	...	...	...	2 1/4 x 2 1/4	11	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3 1/4 pts.	35 x 30 x 25
150-A	275	1,361	...	...	...	...	2 1/4 x 3	13	11 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3 1/2 pts.	35 x 30 x 25
150-W	305	1,838	...	...	...	...	2 1/4 x 3	13	11 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3 1/2 pts.	35 x 30 x 25
200-W	380	2,505	...	...	...	...	3 1/4 x 3 1/2	20	14 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	6 pts.	41 x 32 x 30
300-W	480	3,757	...	...	...	...	3 1/4 x 3 1/2	20	14 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	6 pts.	41 x 32 x 30
500-W	570	5,460	...	...	...	...	3 1/4 x 3 1/2	25	...	CH ₃ Cl	Water	Open	Reciprocating	Belt	6 pts.	41 x 32 x 30
750-W	345	10,108	...	...	...	...	4 x 4 1/4	45	...	CH ₃ Cl	Water	Open	Reciprocating	Belt	12 pts.	64 x 36 x 42
1000-W	400	11,708	...	...	...	...	4 x 4 1/4	45	...	CH ₃ Cl	Water	Open	Reciprocating	Belt	12 pts.	64 x 36 x 42
1500-W	465	14,430	...	...	...	...	4 x 4 1/4	67	...	CH ₃ Cl	Water	Open	Reciprocating	Belt	12 pts.	64 x 36 x 42

*Capacities given at 11.2 lbs. suction pressure measured at crankcase with 90° F. room temperature or 70° F. inlet water temperature.

COMMERCIAL REFRIGERATION

Ice Cream Chest



Kelvinator is introducing this small Kelvin Chest for ice cream. It holds two 2½-gal. cans of bulk ice cream and 7 or 8 gallons of packages or novelties.

New Machines Save \$2,000 Annually

CHICAGO—A \$4,600 installation of York commercial refrigeration equipment in the Harmony cafeteria here is saving an estimated \$2,000 annually over the old brine system which it replaced, declares F. H. Mead, manager of the commercial division of Western & Campbell Co., York Ice Machinery Co. sales agents in Chicago, and has led to orders for two more restaurant air-conditioning installations, one a 44-ton York system to cool its Wabash Ave. cafeteria, and the other a 37-ton system for Harmon's Washington St. restaurant.

Original installation used compressors of 5 and 7½-hp. capacities. The 5-hp. Freon machine furnishes refrigeration for a two-compartment vegetable and sundry cooler (18x8½x7½), a meat cooler (7½x12x7), a meat cooler

vestibule (8x8x7), a fish box (52x52x26 in.), four chef boxes, (2½x5x6, 3x6½x6½, and 3x4x4), two salad counters (8 ft. x 27x27 in.), two chests (4x2x2), a butter box (37x20x40 in.), and a sandwich counter (8 ft. x 16 x 7 in.).

Some of the refrigerators are in the basement of the cafeteria, and others are on the first floor. Approximately 2,500 sq. ft. of finned surface is used in them, and about 500 sq. ft. of bare pipe coil.

The 7½-hp. machine, installed in the basement, handles an ice-making tank which freezes about 3,500 lbs. of ice daily.

Manager S. Cooper of the Harmony Food Co. estimated that the new restaurant refrigeration equipment will pay for itself within two years. He has figured the annual savings as follows:

CO₂ gas, \$43.80; ice, \$1,277.32; oil, \$56.40; repairs, \$115.85; electricity (estimated), \$432; new repairs to put old machine in order, \$200; total saving for first year, \$2,125.37.

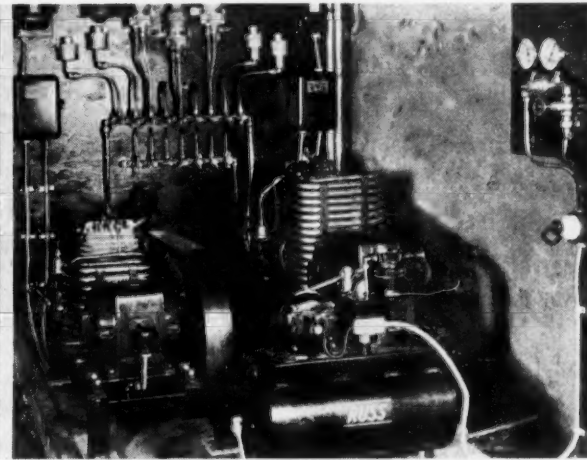
Small Ice Cream Cabinet Built by Kelvinator

DETROIT—Designed to meet the needs of ice cream retail outlets where maximum storage space is needed in the smallest practical type of cabinet, the new Kelvinator Specialty Chest is now in production here, states Edward R. Legg, manager, national direct sales division, Kelvinator Corp.

The "Kelvin Chest" is finished in white permalin. Although light enough to be moved about, the new chest is heavily insulated and designed to operate at a minimum cost. Measuring 29 in. in width, 36 in. high, and 19 in. deep, this cabinet accommodates two 2½-gal. cans of bulk ice cream, or 7 to 8 gallons of packages and novelties.

In pointing out the many uses this cabinet will find in the ice cream trade, Kelvinator officials say that its main function will be to make many of the smaller stops more profitable. It is in this type of stop that the Kelvin Chest will find its greatest use, they believe, because of the fact that its low installation and maintenance cost will convert many of these outlets into definitely desirable accounts from a profit standpoint.

A \$6,000 Commercial Job



General Electric refrigeration equipment costing \$6,000 has been installed in Charles Kuttler's grill at Union City, N. J. The horseshoe stainless steel bar is shown at the left and the G-E condensing units at the right.

Self-Contained Cases Included in New McCray Line

KENDALLVILLE, Ind. — McCray Refrigerator Sales Corp.'s 1935 line of commercial refrigerators and display cases, just introduced, includes 11 models in four general styles, and embodies advancements in design and construction and several new convenience features.

Two of the new cases are complete jobs, with self-contained compressor and coils installed at the factory. Other models are supplied complete with coils.

The new single-duty case—Models 308, 310, and 312—has exterior front and ends of white porcelain, with black base and trim. Rear of the case is of oak, finished in silver-gray. Front has three thicknesses of "clear white" plate glass.

The case is furnished complete with coils and compressor, specially engineered for use together. Models in this line are 35 in. deep, 50 in. high, and lengths are 8, 10, and 12 ft.

The No. 310 is of similar design and appearance to the No. 910, with the addition of a number of new features and improvements. Among these improvements is the addition (where desired) of an adjustable shelf on the top of the display compartment, the use of wider display glass in the front of the case, and wrapping shelves extending full length at the back.

The 310-DD line is a double-duty case of the same general design as the No. 310. Coils and compressor are built in, in Nos. 310-DD and 312-DD. Model 308-DD is built with diffusion-type coils or supplied without the compressor.

Exterior front, top, and ends of this line are of white porcelain, with black base and trim. The front has three thicknesses of "clear white" plate glass, and there are four sliding doors on the back. The cases are 35½ in. deep, 50 in. high, and 8, 10, and 12 ft. long.

The No. 1510 line of cases embodies advancements in top-case construction, and is new to the McCray line this year. Front, top, and ends are of white porcelain, with black base and trim, and back is of oak, with silver-gray finish. The display compartment has two courses of plate glass across the front.

Fin coils are used on the top and diffusion coils under the shelf. Size of these cases is 35 in. deep, 50 in. high, and 8, 10, and 12 ft. long.

For restaurant, hotel, and institutional use, McCray is introducing two new models with porcelain interior and exterior, each of which is supplied with an overhead coil system. These are known as Nos. 9 and 11.

The No. 11 refrigerator is the larger of the two, having four compartments equipped with shelves, and a long door on the right leading into a compartment fitted with meat racks and hooks.

The model is equipped with McCray coils, and ready for use with any type of electric refrigeration. There is a McCray compressor specially engineered for use with this model. Size of the unit is 6 ft. 1½ in. wide, 30½ in. deep, and 6 ft. 8 in. high.

Model No. 9 has four storage compartments fitted with shelves. It is built for electric refrigeration only, the proper coils being furnished. McCray compressor requirements are also specified. Size of this refrigerator is 4 ft. 2 in. wide, 30½ in. deep, and 6 ft. 8 in. high.

Morehouse to Distribute Taylor Freezers

UTICA, N. Y.—H. D. Morehouse & Son has been appointed local representative of the Taylor Freezer Corp., manufacturer of Taylor counter-type ice cream freezers, reports J. J. Tynal, vice president of the manufacturing concern.

\$6,000 G-E Order Sold To Union City Grill

UNION CITY, N. J.—A complete bar installation with General Electric refrigeration, costing more than \$6,000, was installed recently by the commercial department of Philip H. Harrison & Co., Newark distributor, in the grill owned by Charles Kuttler.

General Electric equipment installed consists of a C-137 ice-cube maker, refrigerated by a CMF-5W 1-hp. condensing unit, installed in the back-bar; a CM-6W 1½-hp. condensing unit for refrigerating (through a 30-gallon surge tank) the Russ instant coolers, as well as the finned coil in the bottle section of the back-bar, an EC-18 conditioned-air chilling unit for the pre-cooler, and a CS-270 cabinet with

an EC-15 conditioned-air chilling unit. There is complete tapping and pressure equipment for eight beer lines. The 50-ft. horseshoe bar is finished in stainless steel with chromium trim.

Hussman Cases & G-E Unit in New Market

GRAND RAPIDS, Mich. — Pastoor Bros., Inc., large local meat establishment, recently opened another market in the F. W. Grand store at Monroe Ave. and Campau Square, in the heart of the Grand Rapids business district.

Two Model D510-10 ft. Humid-I-Coiled Hussman Ligonier refrigerator display cases manufactured by the Allied Store Utilities Co., St. Louis, are being used, operated in connection with a ¾-hp. General Electric air-cooled compressor.



TRIPLE Your Beer Installations with the LARKIN Dual-Control Liquid Cooler!

● Complete customer satisfaction, lack of costly service and features that make sales "click" will enable you to sky-rocket your beer installations and profits in 1935.

The LARKIN is the best natural that the industry has seen in years.

It has Dual-Control, Cold Control, reserve Cold-Hold and is available for any refrigerant. One minute after the beer coils are steam or chemically cleaned, 38° beer can be served. The LARKIN is the only liquid cooler that provides for business growth for your customer. Any cooler can be enlarged up to five-beers by adding additional beer coils. No change is necessary in the refrigerating side of the cooler. Only the LARKIN does not disturb and thus preserves the brewed-in flavor.

For cooling beer, water, root beer, carbonated water, orange juice, milk, etc. For saloons, taverns, hotels, restaurants and factories.

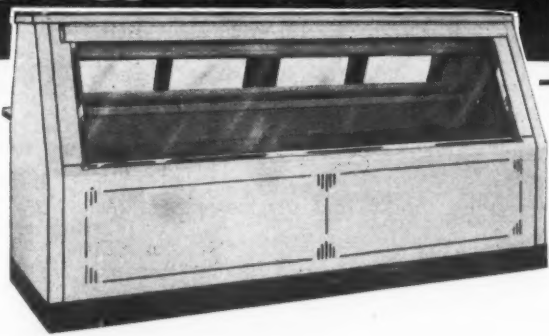
LARKIN

REFRIGERATING CORPORATION
102 Fifth Ave. NEW YORK, N. Y. ATLANTA 325 S. California Ave. CHICAGO, ILL.

Cold Control—Foam Control

The PUFFER HUBBARD Line

PUFFER-HUBBARD
Double Duty Display
Case. Available in
standard 6.8 or 10'
lengths, or to order.



Sell Your Compressor with Puffer-Hubbard Cases

THERE'S extra profit in a "package job". Sell a complete installation—the case and the compressor. Puffer-Hubbard cases are available through accredited refrigeration distributors and dealers only, under franchise. Eliminate competition and step up profits. Puffer-Hubbard cases are styled to today's modern trend. They're designed right—they're built right—they're priced right.

PUFFER-HUBBARD MFG. CO.
MINNEAPOLIS MINNESOTA

Parker

Parker Mfg. Co., Los Angeles, Calif.

Compressor—Rotary shaft seal. Cylinder head cooled by air or water.

Splash-type lubricating system. Oil level measured by sight gauge on larger models. Type of compressor oil: dehydrated pale. Viscosity of compressor oil: 65 to 75.

Condenser—Air cooled: fin tube.

Water cooled: double tube and shell and tube. Location of condenser: at side or under unit. Models ½ hp. and above have shrouded condensers.

Liquid Receiver—Horizontal or vertical.

Materials Used—Cylinder block and pistons: cast iron. Condenser tubing: copper or seamless steel. Condenser shell: electrically welded pipe.

Valves—Reed intake and discharge valves.

Controls—Cutler-Hammer or Penn pressure control. Models in 60 series and larger have high pressure cutout. Type of overload cutout: pressure. Condensing water flow controlled by condensing pressure. Penn water regulating valve.

Model No.	Refrigeration Capacity				Motor No. of Cyl.				Bore & Stroke Inches	Pump Down Capac.	Refrigerant Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches
	40°	20°	5°	-10°	Hp.	No. of Cyl.	Hp.	No. of Cyl.									
A-1020	450	1,340	450	927	450	576	1	1	1 1/4 x 1 1/4	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-620	450	1,080	450	736	450	475	1	1	1 1/4 x 1	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-1220	450	1,370	450	950	450	590	1	1	1 1/4 x 1 1/4	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-1425-D	450	1,965	450	1,370	450	692	1	1	1 1/4 x 1 1/4	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-1625-D	450	2,665	450	1,858	450	1,150	1	1	1 1/4 x 1 1/4	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-1633-D	450	2,665	450	1,858	450	1,150	1	1	1 1/4 x 1 1/4	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-1625	450	2,665	450	1,858	450	1,150	1	1	1 1/4 x 1 1/4	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-1633	450	2,665	450	1,858	450	1,150	1	1	1 1/4 x 1 1/4	2 1/2	1 lb.	Air	Open	Reciprocating	Belt	1 pt.	16 x 21 x 16
A-1650	500	2,965	500	2,044	500	1,265	1	1	1 1/4 x 1 1/4	2 1/2	2 lbs.	Air	Open	Reciprocating	Belt	1 pt.	18 x 29 x 19
A-2250	500	2,965	500	2,044	500	1,265	1	1	1 1/4 x 1 1/4	2 1/2	2 lbs.	Air	Open	Reciprocating	Belt	1 pt.	18 x 29 x 19
A-2275	500	4,925	500	2,375	500	1,480	1	1	2 1/4 x 2 1/4	2 1/2	2 lbs.	Air	Open	Reciprocating	Belt	1 1/2 pts.	20 x 29 x 19
A-4075	360	6,150	360	4,430	360	3,140	1	1	2 1/4 x 2 1/4	2 1/2	3 lbs.	Air	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
A-6010	360	8,850	360	6,380	360	4,530	1	1	2 1/4 x 3 1/4	2 1/2	3 lbs.	Air	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
A-6015	425	10,320	425	7,550	425	5,330	1 1/2	2	2 1/4 x 3 1/4	2 1/2	3 lbs.	Air	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
A-6002	450	12,660	450	8,000	450	5,660	2	2	2 1/4 x 3 1/4	2 1/2	3 lbs.	Air	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
A-1002	360	16,250	360	11,725	360	8,300	2	2	3 x 3	3 1/2	4 lbs.	Air	Open	Reciprocating	Belt	8 pts.	31 x 37 x 29
A-1003	450	18,660	450	11,900	450	9,175	3	2	3 x 3	3 1/2	4 lbs.	Air	Open	Reciprocating	Belt	8 pts.	31 x 37 x 29
DW-2250	500	2,965	500	2,044	500	1,265	1	1	2 1/4 x 1 1/4	2 1/2	2 lbs.	Water	Open	Reciprocating	Belt	1 1/2 pts.	20 x 29 x 19
DW-4075	360	7,350	360	4,930	360	3,270	1	1	2 1/4 x 2 1/4	2 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
DW-6010	360	9,035	360	6,375	360	4,500	1	1	2 1/4 x 3 1/4	2 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
DW-6015	425	10,700	425	7,750	425	5,375	1 1/2	2	2 1/4 x 3 1/4	2 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
DW-6002	450	11,640	450	8,175	450	6,250	2	2	2 1/4 x 3 1/4	2 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	24 x 33 x 28
DW-1002	360	16,450	360	11,700	360	8,375	2	2	3 x 3	3 1/2	4 lbs.	Water	Open	Reciprocating	Belt	8 pts.	31 x 37 x 29
DW-1003	450	20,800	450	14,650	450	10,650	3	2	3 x 3	3 1/2	4 lbs.	Water	Open	Reciprocating	Belt	8 pts.	31 x 37 x 29
DW-2005	250	32,976	250	23,400	250	16,965	5	2	4 x 4	5 1/2	6 lbs.	Water	Open	Reciprocating	Belt	24 pts.	36 x 72 x 54
W-4075	360	7,350	360	4,930	360	3,270	1	1	2 1/4 x 2 1/4	3 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	20 x 36 x 36
W-6010	360	9,035	360	6,375	360	4,500	1	1	2 1/4 x 3 1/4	3 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	20 x 36 x 36
W-6015	425	10,700	425	7,750	425	5,375	1 1/2	2	2 1/4 x 3 1/4	3 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	20 x 36 x 36
W-6002	450	11,640	450	8,175	450	6,250	2	2	2 1/4 x 3 1/4	3 1/2	3 lbs.	Water	Open	Reciprocating	Belt	5 pts.	20 x 36 x 36
W-1002	360	16,450	360	11,700	360	8,375	2	2	3 x 3	4 1/2	4 lbs.	Water	Open	Reciprocating	Belt	8 pts.	24 x 54 x 42
W-1003	450	20,800	450	14,650	450	10,650	3	2	3 x 3	4 1/2	4 lbs.	Water	Open	Reciprocating	Belt	8 pts.	24 x 54 x 42
W-2007 1/2	300	39,600	300	27,700	300	19,400	7 1/2	2	4 x 4	6 1/2	6 lbs.	Water	Open	Reciprocating	Belt	24 pts.	36 x 84 x 54
W-20010	425	56,200	425	39,300	425	27,500	10	2	4 x 4	6 1/2	6 lbs.	Water	Open	Reciprocating	Belt	24 pts.	36 x 84 x 54

Phoenix

Phoenix Ice Machine Co.
Cleveland Ohio.

Compressor—Bellows and lubricated ring type shaft seal. Cylinder head cooled by air on all air-cooled models; water on "W" or "AW" models ex-

cept model 332. Splash-type lubricating system. Oil level measured by bulls-eye glass in crankcase on models 1002-W-15003 inclusive. Special dehydrated refrigeration oil for methyl chloride and Freon refrigerants. Viscosity of compressor oil: for methyl chloride, 240-260 at 100° F.; for Freon 150-175 at 100° F.

Condenser—Air-cooled models: continuous fin tube. Water-cooled models: double-tube using counterflow principle. Condenser mounted on base opposite motor, except for models W-2003 to W-15003 inclusive, where it is between motor and compressor.

Controls—Penn or Detroit Lubricator pressure control. All "W" and

"AW" models have high pressure cutout. Overload relay overload cutout. Condensing water flow controlled by head pressure. Penn water regulating valve on all but models W-7503, AW-7503, W-10003, AW-10003, W-15003, and AW-15003 which use Electricmatic valve.

Special Features—The 1/4-hp., 1 1/2-hp.,

2-hp., and 15-hp. models, together with the AW-10003 unit, are equipped with overhead intake valves.

Valves—Swedish flapper intake valve, flange seated cup discharge valves.

Materials Used—Cast semi-steel cylinder block. Cast iron pistons. Copper condenser tubing.

Model No.	40°		20°		5°		-10°		Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Com-pressor Drive	Quantity of Oil	Overall Dimensions Inches		
	R.p.m.	B.t.u.	R.p.m.	B.t.u.	R.p.m.	B.t.u.	R.p.m.	B.t.u.												x	x	x
251 .....	...	...	360	1,250	...	...	...	...	¾	1	1-13/16 x 1 ½	5	2 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	1 pt.	26	x 18 ¼	x 22
332 .....	...	...	320	1,990	...	...	...	...	¾	2	1-13/16 x 1 ½	5	3 ½ lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	2 ½ pts.	26	x 18 ¼	x 22
W-332 .....	...	...	360	2,780	...	...	...	...	¾	2	1-13/16 x 1 ½	5	3 ½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	2 ½ pts.	26	x 18 ¼	x 22
502 .....	...	...	320	3,160	...	...	...	...	¾	2	2 ¼ x 1 ½	6	4 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3 pts.	32	x 19 ½	x 23
W-502 .....	...	...	385	4,350	...	...	...	...	¾	2	2 ¼ x 1 ½	6	4 ½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	3 pts.	32	x 19 ½	x 23
752 .....	...	...	320	4,230	...	...	...	...	¾	2	2 ¼ x 2	6	4 ½ lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	3 pts.	32	x 19 ½	x 25
W-752 .....	...	...	385	6,230	...	...	...	...	¾	2	2 ¼ x 2	6	5 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	3 pts.	32	x 19 ½	x 25
1002 .....	...	...	275	6,780	...	...	...	...	1	2	2 ¼ x 3	11 ½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
AW-1002	275	13,330	...	...	...	...	...	...	1	2	2 ¼ x 3	16 ½	12 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
W-1002 .....	...	...	320	8,700	...	...	...	...	1	2	2 ¼ x 3	11 ½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
1502 .....	...	...	320	9,400	...	...	...	...	1 ½	2	2 ½ x 3	11 ½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
AW-1502	320	18,950	...	...	...	...	...	...	1 ½	2	2 ½ x 3	16 ½	12 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
W-1502 ...	...	...	400	12,770	...	...	...	...	1 ½	2	2 ½ x 3	11 ½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
2002 .....	...	...	400	11,800	...	...	...	...	2	2	2 ½ x 3	11 ½	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
AW-2002	400	23,650	...	...	...	...	...	...	2	2	2 ½ x 3	16 ½	12 lbs.	Freon	Water	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
W-2002 .....	...	...	480	15,430	...	...	...	...	2	2	2 ½ x 3	11 ½	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	6 pts.	38 ½	x 25	x 30 ½
W-2003 .....	...	...	400	20,000	...	...	...	...	2	3	2 ½ x 3	19 ½	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	8 pts.	52 ½	x 25	x 31 ½
AW-3003	400	36,450	...	...	...	...	...	...	3	3	2 ½ x 3	28	14 lbs.	Freon	Water	Open	Reciprocating	V-Belt	8 pts.	52 ½	x 25	x 31 ½
W-3003 .....	...	...	470	23,450	...	...	...	...	3	3	2 ½ x 3	19 ½	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	8 pts.	52 ½	x 25	x 31 ½
AW-5003	400	59,000	...	...	...	...	...	...	5	3	3 ¼ x 3	28	16 lbs.	Freon	Water	Open	Reciprocating	V-Belt	9 pts.	52 ½	x 25	x 32
W-5003 .....	...	...	470	38,550	...	...	...	...	5	3	3 ¼ x 3	19 ½	14 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	9 pts.	52 ½	x 25	x 32
AW-7503	275	88,500	...	...	...	...	...	...	7 ½	3	4 x 4 ¼	43 ½	20 lbs.	Freon	Water	Open	Reciprocating	V-Belt	12 pts.	65	x 32 ¾	x 36 ½
W-7503 .....	...	...	345	62,300	...	...	...	...	7 ½	3	4 x 4 ¼	30 ½	17 ½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	65	x 32 ¾	x 36 ½
AW-10003	345	112,200	...	...	...	...	...	...	10	3	4 x 4 ¼	43 ½	20 lbs.	Freon	Water	Open	Reciprocating	V-Belt	12 pts.	67	x 32 ¾	x 36 ½
W-10003 .....	...	...	400	70,300	...	...	...	...	10	3	4 x 4 ¼	30 ½	17 ½ lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	67	x 32 ¾	x 36 ½
AW-15003	525	151,500	...	...	...	...	...	...	15	3	4 x 4 ¼	43 ½	22 lbs.	Freon	Water	Open	Reciprocating	V-Belt	12 pts.	67	x 32 ¾	x 36 ½
W-15003 .....	...	...	525	89,500	...	...	...	...	15	3	4 x 4 ¼	30 ½	19 lbs.	CH ₃ Cl	Water	Open	Reciprocating	V-Belt	12 pts.	67	x 32 ¾	x 36 ½

AIR CONDITIONING

Detroit Engineers Hear Kratz Tell Of Summer Cooling Tests

(Concluded from Page 1, Column 5)

double pipe condenser and a 4-cylinder compressor, driven by a 2-hp. motor. This unit was self-contained.

Cooling was accomplished by direct expansion of Freon in an evaporator (cooling coil), consisting of 32 rows of finned copper tubing, placed in a by-pass in the central cold air return duct. Nominal rating of the condenser and evaporator units as used was 21,700 B.t.u.'s per hour with refrigerant temperature of 32° F., water temperature of 80° F., or 29,500 B.t.u.'s per hour with refrigerant temperature of 32° F., and water temperature 60° F., with an air velocity of approximately 350 f.p.m. across the 3.54 sq. ft. evaporator face area.

Controlled by Thermostat

Operation of the cooling plant as a whole was controlled by means of a room thermostat placed in the hall on the second story, which served to start and stop the refrigerating machine in accordance with the cooling load required to maintain a constant room temperature.

To provide outdoor air for cooling during the night, a slide damper was placed in the by-pass in the downstream side of the cooling coil, and a door was placed in the recirculating duct just ahead of the fan.

When outdoor air was required, the basement door and the door in the recirculating duct were opened, and the slide damper was closed. The fan in the forced-air system delivered approximately 1,300 cu. ft. of air per minute when recirculating the air in the house, and 2,200 c.f.m. when using outdoor air at night.

Continuous Records

During the summer, from June 5 to Sept. 16, continuous records were kept of temperatures in the dining room, kitchen, first story hall, living room, east bedroom, southwest bedroom, northwest bedroom, and third story hall. Records of relative humidity, and wet and dry bulb temperatures of air entering and leaving the cooling unit were also kept.

Four series of tests were made: (1) artificial cooling during the day, supplemented with circulation of outdoor air at night; (2) artificial cooling during the day not supplemented with circulation of outdoor air at night; (3) circulation of outdoor air at night, without artificial cooling during the day; (4) circulation of outdoor air at night without artificial cooling in day time, but started an hour later than previously.

(These tests were explained fully in a report presented by Prof. Kratz before the January, 1935, meeting of the American Society of Heating & Ventilating Engineers, and printed in the Feb. 27 issue of ELECTRIC REFRIGERATION NEWS.)

Season Was Severe

On all of the tests in which the average indoor temperature for the tests was not above 81° F., the maximum indoor temperature did not rise above 81.5° F., and then only for a short time. With indoor relative humidities between 45 and 55 per cent this was equivalent to effective temperatures between 74 and 75° F.

The season of 1934, Prof. Kratz pointed out, was unusually severe, as shown by the number of degree hours above 85° F., 2,657.5, compared with 2,309.3 for 1933.

Total heat absorbed during the season with the two methods of operating the residence from June 20 to Sept. 16 was equivalent to an ice meltage of 29 tons. This equivalent tonnage, Prof. Kratz said, would have been increased if the plant had been in operation about May 15; but cool weather in late May and early June would have necessitated use of the cooling system for only about five days more than was done last year.

Savings on Night Cooling

A comparison of figures shows that 43.3 tons of ice were used during the summer of 1932, when windows were kept closed all the time and no advantage taken of night air for cooling; an estimated 19 tons was used during the 1933 season, when the fan in the forced-air heating system was used at night, and windows on both floors opened; and an estimated 27.5 tons used during 1934, with outdoor night air used during much of the season.

Maximum amount of ice used during 1933 was limited to 700 lbs. per day, and night cooling with windows opened on both floors was considerably more effective than the 1934 plan, which used open windows only

on the second floor, Prof. Kratz pointed out.

Total cost of operating the system last year was a little over \$50. Opening the test season earlier would have increased this figure somewhat, but since only about five days cooling would have been necessary, Prof. Kratz estimated that \$60 would have covered the cost of water and electricity, figured at current Urbana, Ill., rates.

Detroit Edison Engineer Describes Local Tests

Mr. Helmrich's speech, also illustrated with lantern slides, dealt with experimental work in summer cooling in the home of a Detroit Edison Co. employee in Birmingham, a suburb of Detroit. This work, like that at Illinois, has been under way for three years, only one of them (1934) with mechanical refrigeration.

The residence was a two and one-half story structure, and the space cooled consisted of four rooms on each of the two lower floors and one room on the third floor—nine rooms, with a volume of 19,200 sq. ft. Experiments were under the direction of J. H. Walker of the Detroit Edison Co.

House Well Insulated

The house, Mr. Helmrich said, was especially well insulated, with Cabot's Quilt in the walls and Balsam Wool in the ceilings. Windows on all sides were shaded by either blinds or awnings. Under these conditions, the calculated cooling load was 35,000 B.t.u.'s per hour, but experience showed the actual cooling load to be considerably less.

Refrigerating machinery consisted of a 2-ton unit connected to a direct expansion, forced convection cooling coil using Freon. The coil was placed in the main return air chamber of the forced warm air heating system, and no changes were made in the existing ductwork except minor ones to accommodate the coil.

Recirculating Dampers

Recirculating and outside air dampers were inter-connected so that by opening the lower damper, outdoor air could be pulled through the basement through open basement windows and discharged into the rooms, making it possible to supplement artificial cooling with night-air cooling when temperatures were favorable.

The cooling coil had a face area of 4.4 sq. ft. and a face velocity of 365 f.p.m., when handling 1,570 c.f.m. The air temperatures were about of this order: dining room temperature was 77° F., temperature of the air entering the cooling coil was about 74° F., leaving the cooling coil at about 64° F., and the register at about 66° F.

Air Friction Loss

Air friction loss through the coils amounted to about 0.11 in. of water, and the actual static water drop through the entire duct system is 0.265 in. of water. Operating coil pressure was about 43-45 lbs. to the square inch, in corresponding to an operating temperature of 43° to 48° F.

The compressor operates at 400 r.p.m., driven by a 220-volt single-phase capacitor-start induction motor. It was equipped with a balanced flywheel, to reduce vibration to a minimum.

In operating the system, the family owning the home was asked to keep a log sheet showing the time of starting and stopping the equipment, the indoor relative humidity, and such. Otherwise members of the family were left free to operate the system as they liked, so that results might be fairly representative of what could be expected from similar installations.

Cooling Started at Noon

Cooling was usually started in mid-day, and continued until an hour or two after dinner in the evening. Indoor relative humidity, generally 67 to 71 per cent at the start of the cooling system, was usually down to about 60 to 63 per cent after two to three hours of cooling, and to about 50 to 55 per cent at the end of the cooling periods. Amount of moisture condensed by the cooling coils varied from 4 to 6 lbs. per hour.

Tests indicated that the cooling system had sufficient capacity to hold downstairs temperatures to an average of 78° F., and an effective temperature of 71 to 72° F. On the hottest day last summer (July 24), when outdoor temperature exceeded 100° F., the first floor temperature did not

exceed 79° in the living room. As previous tests had shown that, without cooling, indoor temperature would have risen to about 85° with corresponding outdoor temperature, the cooling system may be credited with reducing indoor temperature about 7° F.

Operation of the machine is controlled by a solenoid valve and a thermostat located in the dining room. This was operated by the persons using the home. As the machine proved to be not quite large enough in capacity to reduce the indoor temperature to the optimum temperature recommended on the comfort chart, there was no tendency toward over-cooling, and it was found that the installation of the thermostat could have been dispensed with, Mr. Helmrich said.

Test During Heat Wave

Most severe test of the system was during the two-day hot wave last July, when the compressor was operated continuously for a period of 30 hours. Outdoor temperature exceeded 100° F. on the first day and 97° F. on the second day. No windows were open during the cooling period, and on the second day the upstairs temperature did not exceed 79° F. and the downstairs temperature did not go over 78° F.

Although no outdoor air was taken into the system, occupants of the house said condition of the air in the sleeping rooms was satisfactory. Reduction of the indoor relative humidity to a minimum of 52 per cent at the end of the cooling period was doubtless a large factor in producing a satisfactory condition, Mr. Helmrich said.

Six Persons in Home

Six persons occupied the Detroit Edison research home.

Measurement of heat absorption by the cooling coils was measured as about 22,150 B.t.u.'s per hour, of which about 17,000 B.t.u.'s was sensible heat, and the balance of about 5,000 B.t.u.'s latent heat was the dehumidifying cooling load. The forced warm air distributing system was found very satisfactory for distributing cool air, and register temperatures of 65 to 66° F. did not cause objectionable drafts.

Comparison of last summer's operating costs with mechanical refrigeration with those of the two previous summers, where ice refrigeration was used, showed that the mechanical system could be operated for about a fourth of the total cost of the previous system used.

2-Ton Machine

Experience also indicated that a moderate sized residence (if well insulated) could be cooled satisfactorily with a 2-ton refrigerating machine, and that a 3-ton machine should be large enough even for a house which is only fairly well insulated. It was also found not necessary, except under unusual circumstances, to supply outdoor air to a residential cooling system. Sleeping rooms, the experiments indicated, may be satisfactorily cooled without introducing outside air.

Total operating cost of cooling residences of approximately the same size as the experimental home, it was indi-

cated, should not exceed a maximum of \$50 or \$60, and is more likely to be about \$30. For a much larger residence, with a volume of about 30,000 cu. ft., operating cost might conceivably exceed \$100.

Russ Introduces New Soda Fountain Line

CLEVELAND — Incorporating a number of basic changes in soda fountain construction, the 1935 line of Russ Monarch equipment has just been introduced by the Russ Soda Fountain Co.

Features of the new Russ line include the patented Multi Flavor Trayveyor, which permits the use of 2½-gal. cans as well as the handling and serving of a variety of packaged ice creams; distributed refrigeration, to insure a constant temperature; rolled, stainless steel serving tops; a cold control panel, which permits the operator to raise or lower the temperature of the cream compartment and to increase water-cooling facilities to meet peak service demands; all-steel, electrically welded frame, and heavy-duty Monel metal syrup pumps.

The fountains are available in a

complete line of custom-built and ready-to-install models, and a wide range of selection permits the assembly of equipment to match various requirements.

Russ is also bringing out a complete line of fountain counters in vitrolite, tile, and marble, and available in a variety of color combinations with the new fountain equipment.

Westinghouse Develops Range Sales Kit

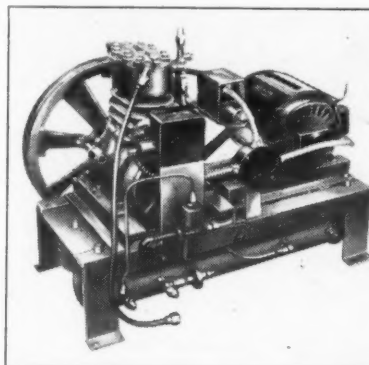
MANSFIELD — New sales aid for Westinghouse electric range and water heater salesmen is a compact carrying case or kit, with 25 divisions holding information on such matters as the National Housing Act, statistics of the electrical industry, new advertising, new campaigns, etc.

Each kit is numbered, and a master record is kept at the Westinghouse company here, so that new material can be added from time to time, by the company, in addition to what each man adds to his kit from his own stock of references and supplies.

One feature of the kit is its use for the preparation of special plans and portfolios for presentation to utilities.

ZEROZONE

Custom-Built Condensing Units



I. C. MODELS

To Order

For manufacturers of ice-cream freezing equipment and other industries requiring low temperature machines we offer a "custom-built" advantage which insures the engineered adaptation of Zerozone units to specific installations. We will build the appropriate Zerozone unit to fit your equipment.

ZEROZONE refrigeration is free from oil slugging! Quiet valve action is a feature of these units. Condensers are double-tube type which insures maximum receiver capacity. Bearings are of bronze, bored, reamed, lapped and oversized. The eccentric drive makes ZEROZONE compressors long-lived. Notice the compact appearance of ZEROZONE "IC" units which permits their installation in minimum space.

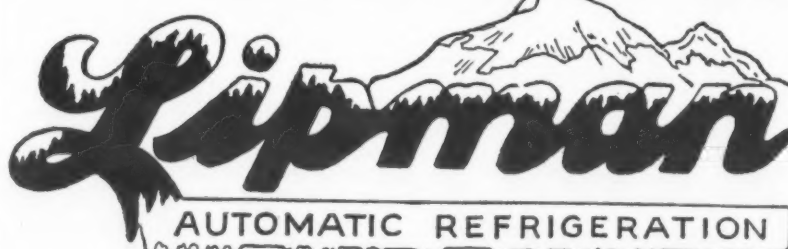
For applications having appreciable and sudden fluctuation from high to low temperature and vice-versa, ZEROZONE units are definitely needed. They are built to extremely close limits for maximum efficiency.

ZEROZONE STANDARD CONDENSING UNITS available in 29 models from ¼ to 3 H.P. with I.M.E. capacities of 100 lbs. to 2,000 lbs. per 24 hours.

A new and completely descriptive catalog of Zerozone Condensing Units is now ready. Write for your copy today.

ZEROZONE REFRIGERATION CO.
1331 Holden Ave., Detroit, Mich.

The constant cold of the mountain top



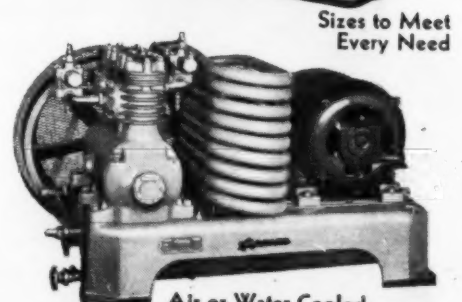
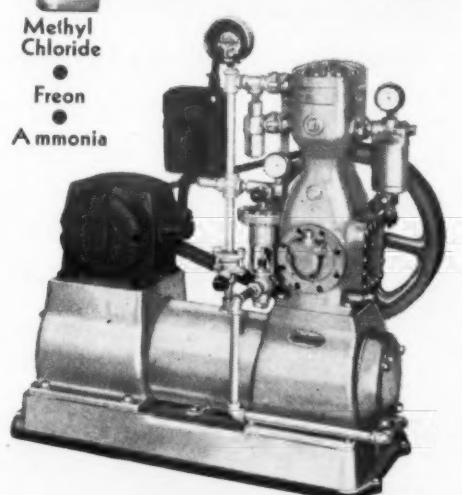
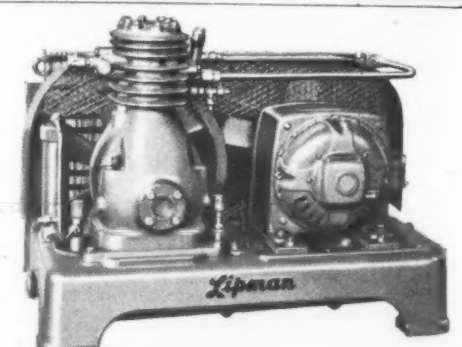
Offers Unusual Advantages

The LIPMAN line has much to offer:

- (1) A complete line of types and sizes suitable to handle every commercial refrigeration need.
- (2) A line that embodies experienced engineering, practical design, skillful workmanship and precision manufacture.
- (3) The resources of a company that pioneered the field of self-contained, full automatic refrigerating machines and that for nearly two decades has devoted itself exclusively to commercial refrigeration and air conditioning manufacture.
- (4) A line that has proven its reliability, efficiency and economy in thousands of satisfactory installations.
- (5) A line that is made by the same company which has furnished air conditioning and refrigeration equipment for hundreds of railroad coaches in the past five years.
- (6) A complete line of refrigeration accessories, including Discfin Evaporators, Pipe Coils, Water Coolers, Water Valves and Expansion Valves.

Some territory for the LIPMAN line is still open. Write or wire for information concerning direct factory or dealer franchise.

General Refrigeration Sales Company
Dept. 5-D—Beloit, Wis., U. S. A.



Methyl Chloride
Freon
Ammonia

Sizes to Meet Every Need

Air or Water Cooled.

O'Keefe & Merritt

O'Keefe & Merritt Co., Los Angeles, Calif.

Compressor—Rotary shaft seal. Cylinder head cooled by air or water. Splash-type lubricating system. Oil level measured by gauge. "Sunisco" compressor oil.

Condenser—Air-cooled: fin type. Water-cooled: double tube. Located at side of unit.

Liquid receiver—Horizontal type. All models have refrigerant filter.

Materials used—Cylinder block and pistons: cast iron. Condensing tubing and condenser shell: copper.

Controls—Penn control. All water-

cooled models have high pressure cut-out. Fresher overload cutout. Penn water regulating valve.

Valves—Reed intake and discharge valves.

Model No.	Refrigeration				Capacity†				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches		
	32° R.p.m.	32° I.M.E.	23° R.p.m.	23° I.M.E.	5° R.p.m.	5° I.M.E.	13° R.p.m.	13° I.M.E.														
WCE-2	350	4,053	350	3,180	350	1,954	350	1,239	2	2	3 1/4 x 2 1/2	12	...	*	Water	Open	Reciprocating	Belt	8 pts.	34	x 28	x 25
WCE-3	470	5,319	470	4,174	470	2,562	470	1,626	3	2	3 1/4 x 2 1/2	12	...	*	Water	Open	Reciprocating	Belt	8 pts.	34	x 28	x 25
B-2	300	552	300	434	300	251	300	141	1/2	2	2 x 1 1/4	12	...	*	Air	Open	Reciprocating	Belt	8 pts.	32	x 18	x 20
B-3	400	773	400	608	400	353	400	196	1/2	2	2 x 1 1/4	12	...	*	Air	Open	Reciprocating	Belt	8 pts.	32	x 18	x 20
C-4	525	1,413	525	1,163	525	676	525	430	3/4	2	2 1/2 x 1 1/4	12	...	*	Air	Open	Reciprocating	Belt	8 pts.	32	x 18	x 20
WCD-1	300	2,005	300	1,577	300	966	300	635	1	2	2 1/2 x 2 1/2	12	...	*	Water	Open	Reciprocating	Belt	8 pts.	34	x 28	x 25
WCD-1 1/2	425	2,807	425	2,209	425	1,352	425	859	1 1/2	2	2 1/2 x 2 1/2	12	...	*	Water	Open	Reciprocating	Belt	8 pts.	34	x 28	x 25

Super-Cold

Commercial Refrigerator Mfg. Co., Los Angeles, Calif.

Compressor—Rotary shaft seal. Cylinder head cooled by air or water.

Splash-type lubricating system. Oil level measured by height level plug. Type of compressor oil: Sunisco No. 4. Viscosity of compressor oil: 250 to 280.

Condenser—Air-cooled models: fin tube. Water-cooled: tube within a

tube. Location of condenser: upright, on back rail of frame.

Controls—Tagliabue and Penn pressure control. Models with high pressure cutout: all water-cooled, and all air-cooled models over 1/2 hp. Condensing water flow controlled by con-

denser pressure. Penn X.L.I.M. water regulating valve.

Liquid receiver—Horizontal type. All models have fusible safety plug and refrigerant filter.

Materials used—Cylinder block: annealed cast iron. Pistons: special cast

iron alloy. Condenser tubing: copper.

Valves—Flapper intake valve. Controlled travel, reed-type discharge valve.

Special features—All models capable of high speed with minimum passage of oil.

Model No.	Refrigeration				Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches		
	40° R.p.m.	40° B.t.u.	20° R.p.m.	20° B.t.u.	5° R.p.m.	5° B.t.u.	10° R.p.m.	10° B.t.u.														
14-A	290	...	...	...	...	...	...	...	1/2	2	1 1/2 x 1 1/2	7	5 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	24	x 16	x 17 1/2
13-A	290	...	...	...	...	...	...	...	1/2	2	2 x 1 1/4	7	6 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	24	x 16	x 17 1/2
13-HDA	290	...	...	...	...	...	...	...	1/2	2	2 x 1 1/4	8	7 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	26 1/2	x 18	x 18
12-A	360	...	...	...	...	...	...	...	1/2	2	2 1/4 x 1 1/4	13	8 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	1 pt.	27 1/2	x 19	x 18
12-W	360	...	...	...	...	...	...	...	1/2	2	2 1/4 x 1 1/4	13	8 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	1 pt.	28	x 21	x 20
34-A	275	...	...	...	...	...	...	...	3/4	2	2 1/4 x 2 1/4	20	9 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3 pts.	31	x 21	x 23
34-W	275	...	...	...	...	...	...	...	3/4	2	2 1/4 x 2 1/4	20	9 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3 pts.	31	x 23	x 24
100-A	345	...	...	...	...	...	...	...	1	2	2 1/4 x 2 1/4	20	10 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3 pts.	31	x 21	x 23
100-W	345	...	...	...	...	...	...	...	1	2	2 1/4 x 2 1/4	20	10 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3 pts.	31	x 23	x 24
150-A	390	...	...	...	...	...	...	...	1 1/2	2	2 1/2 x 2 1/2	22	12 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	3 pts.	32	x 25	x 24
150-W	390	...	...	...	...	...	...	...	1 1/2	2	2 1/2 x 2 1/2	22	12 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	3 pts.	32	x 27	x 25
200-A	330	...	...	...	...	...	...	...	2	4	2 1/2 x 2 1/2	22	15 lbs.	CH ₃ Cl	Air	Open	Reciprocating	Belt	6 pts.	32	x 25	x 24
200-W	330	...	...	...	...	...	...	...	2	4	2 1/2 x 2 1/2	22	15 lbs.	CH ₃ Cl	Water	Open	Reciprocating	Belt	6 pts.	32	x 27	x 25

De La Vergne

De La Vergne Engine Co., Philadelphia, Pa.

Compressor—Cylinder head cooled by air. Forced-type lubricating system.

Condenser—Fin tube or double pipe.

Liquid Receiver—Horizontal type. All models have fusible safety plug.

Controls—Make and type optional. All water-cooled models have high

pressure cutout. Condensing water flow controlled by regulating valve.

Valves—Rig-type intake and discharge valves.

Materials Used—Cylinder block and pistons, cast sheet steel. Condenser tubing: copper.

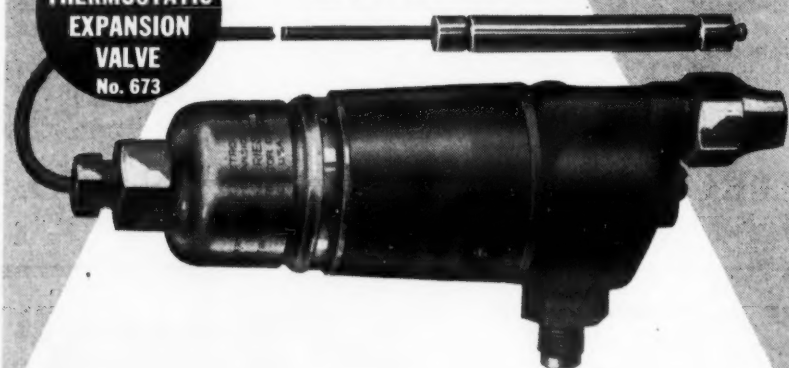
Model No.	Refrigeration				Capacity				Motor Hp.	No. of Cyl.	Bore & Stroke Inches	Pump Down Capac.	Refrigerant Quantity	Kind	Condenser Cooling Medium	Type of System	Type of Compressor	Compressor Drive	Quantity of Oil	Overall Dimensions Inches		
	40° R.p.m.	40° B.t.u.	20° R.p.m.	20° B.t.u.	5° R.p.m.	5° B.t.u.	10° R.p.m.	10° B.t.u.														
C1-AA	1,750	12,000	...	...	...	...	...	...	1 1/2	2	...	...	7 1/2 lbs.	Freon	*	Hermetic	Reciprocating	Direct	...	...	...	...
C1-AW	1,750	12,000	...	...	...	...	...	...	1 1/2	2	...	...	7 1/2 lbs.	Freon	*	Hermetic	Reciprocating	Direct	...	...	...	...
C1.5-AA	1,750	18,000	...	...	...	...	...	...	2	2	...	...	7 1/2 lbs.	Freon	*	Hermetic	Reciprocating	Direct	...	...	...	...
C1.5-AW	1,750	18,000	...	...	...	...	...	...	2	2	...	...	7 1/2 lbs.	Freon	*	Hermetic	Reciprocating	Direct	...	...	...	...
C4-AA	1,750	48,000	...	...	...	...	...	...	5	2	...	...	15 lbs.	Freon	*	Hermetic	Reciprocating	Direct	...	...	...	...
C4-AW	1,750	48,000	...	...	...	...	...	...	5	2	...	...	15 lbs.	Freon	*	Hermetic	Reciprocating	Direct	...	...	...	...

*Water or Air.

RECOGNIZED

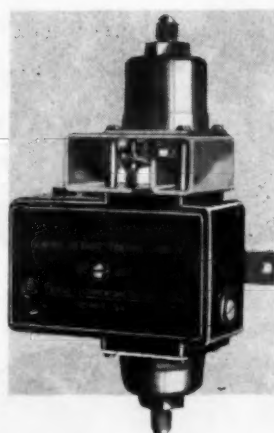
for Better Operating Characteristics

"GENUINE DETROIT" THERMOSTATIC EXPANSION VALVE No. 673



Accurately maintains the coil completely refrigerated to maximum efficiency at all temperatures. ... Completely sealed against moisture. ... Accurately adjusted at the factory. ... Sensitive and dependable operation at low or high temperatures. ... Full flow assures maximum tonnage.

Bulletin No. 51 on request



"GENUINE DETROIT" CONTROL SWITCH NO. 250

This switch is supplied in several models for the control of low side temperatures and pressures. High pressure cutout for both temperature and pressure is also incorporated.

One of the many outstanding features of this switch is the ease and convenience of its adjustment.

Bulletin No. 60 on request

DETROIT LUBRICATOR COMPANY

DETROIT, MICHIGAN, U. S. A.

Division of American Radiator and Standard Sanitary Corporation

Air-Conditioning Installation in Michigan Hotel Brings 50% Increase in Business During Summer

ST. CLAIR, Mich.—A working demonstration of the practicality and profit possibilities of air conditioning in the small hotel is furnished by the St. Clair Inn here, in which 40 guest rooms were conditioned last summer by the Detroit branch of Carrier Engineering Corp.

Installed at a cost of approximately \$7,500, the system, although in operation for only one season, contributed materially toward bringing business into the hotel. Much of it comes from Detroit, but 50 miles away.

Summer business during 1934 was 50 per cent over that of the previous year, reports Manager James W. Shea. As for the food business, by far the greater part of this is transient in nature, but as high as 600 meals have been served in a day, and the volume has gone as high as \$8,000 a month.

Advertise Cooling

The St. Clair Inn has been telling the public about its new air-conditioning system. "Relief from the heat," reads the circular heading on material which the hotel circulates among its guests and patrons.

"The St. Clair Inn announces the completion of an air-conditioning and air-cooling installation serving its dining rooms, most of its public rooms and bedrooms, thus insuring comfortable temperatures while dining, dancing, and sleeping, even during the hottest weather," the material reads.

Information About System

In the guest rooms, a small card has been placed, with information about the air-conditioning system and its method of operation. It reads:

"This room is air conditioned and air cooled, thus insuring comfortable room temperatures even during the hottest weather. For best results, the windows should remain closed at all times and the louvers in the doors should be kept open. The ventilating fan runs constantly and the refrigerant automatically turns on when the room temperature warrants cooling."

The installation in the hotel is of the central type, with a riser duct going up to the attic through the closet space. This main duct is continued over a corridor, and doors into the bedrooms open onto the corridor from both sides.

Supply duct runners drop into a small box directly over the door in each guest room. The boxes are fitted with high speed diffusers that throw the air into the room so fast that it mixes with the air in the room immediately, obviating the possibility of a draft. Slots in the diffusers are

arranged so that they can be opened or shut in any combination, allowing the occupant of the room to regulate the cooling to suit himself.

Air is returned to the conditioner in the basement through a grilled opening in the corridor which leads to the return duct. Due to the fact that twice as much air is circulated to the rooms as is returned (because of the mixture of recirculated and outside air in the return duct) a pressure is built up, which forces the air through the louvers doors in the bedrooms into the corridors.

The four bedrooms on the first floor, the ladies' powder room and the mens' grille and mens' lounge, are served by supply duct runners in the same manner as the bedrooms on the second floor. No return ductwork is supplied on the first floor, however, the conditioned air being allowed to spill out of the rooms and into the corridors.

Dining Room Supply

The main dining room receives conditioned air from a supply duct which branches off the main riser duct. During meal times, by regulation of dampers in the ductwork, half of the air circulated by the blower is diverted into the dining room. The dampers are regulated by a push button on the first floor of the inn.

From the return duct, where fresh and recirculated air are mixed in a 50-50 ratio, the air passes first through a filter, and then over direct expansion coils, where it is cooled and dehumidified. An American Blower fan, rated at 8,000 c.f.m., drives the air up through the riser duct.

The coils are served by two 10-hp. Carrier Freon refrigerating compressors. The fan operates continuously from a 3-hp. motor, but the compressors are controlled by a two-temperature thermostat located on the second-floor corridor.

When the temperature rises to 80° F., one compressor cuts in, and if it should rise to 82° F., indicating a heat load too heavy for the compressor, the second one cuts in. Air leaving the cooling coils is at a temperature of 50° F.

The installation is designed for the maximum comfort of guests. A fresh supply of clean air is being fed to the rooms at all times, and when refrigeration of the air is needed, it is taken care of automatically.

With the 8,000 c.f.m. rating of the blower fan, engineers estimate that each room is getting 150 c.f.m. of conditioned air. Ventilation experts figure that if an individual gets air at the rate of 15 c.f.m. it is sufficient for his needs.

TVA Propaganda in Schools Criticized By Congressman

WASHINGTON, D. C.—The spreading of so-called "propaganda" by the Tennessee Valley Authority in public schools came in for some sharp criticism Friday before the House of Representatives committee on interstate commerce, at a hearing on the Rayburn-Wheeler holding company bill.

Representative Cooper (Ohio) interrupted testimony against the holding company bill by S. R. Inch, president of the Electric Bond & Share group, to assert that the TVA distributed "propaganda" articles among schools and urged pupils to keep "TVA scrap books."

Mr. Cooper threw the committee into an uproar, when he charged (referring to Senator Wheeler) that "there are two sides to this question, depending on who's making the propaganda."

The congressman read from an article in the *National Education Association Journal* of last December, suggesting that school pupils might keep scrap books on the Tennessee Valley project, and a number of other curricular recommendations including "TVA commencement programs."

"A man by the name of Myers wrote the article," said Cooper.

Quoting Senator Dickinson (Iowa) as authority for the statement that 50,000 copies were printed and 25,000 of them bought by the TVA, the congressman concluded:

"That's just a little different kind of propaganda. If any one has gone further than the TVA, if that is true, I'd like to know who."

Both Mr. Inch and John W. Carpenter, president of the Texas Light & Power Co., said the Rayburn bill, to abolish holding companies by 1940, would be "ruinous" to the industry and the stockholders.

Mr. Inch urged the creation of an impartial fact-finding commission to "find the actual, needed, reasonable basis for regulation." This, he said, he did not oppose.

Representative Pettengill (Indiana) asked Mr. Inch if it would be satisfactory to put into the Rayburn bill a requirement that the TVA come under the accounting provisions of the act.

"It would help," replied the utilities head, who previously had complained bitterly of the mysterious length of the TVA "yardstick," "but why just accounting? Of course it would help, provided those accounts were audited by public auditors."

Representative Pettengill said he might offer that as an amendment to the proposed measure.

COMMERCIAL REFRIGERATION

The Commercial Market

OUTLETS	APPLICATIONS											
	DISPLAY CASE	STORAGE CABINET	WALKIN COOLER	SALAD COUNTERS	ICE CREAM CABINET	BEVERAGE COOLER	BEER COOLERS	ICE MAKERS	X-RAY EQUIP.	WATER COOLERS	BIOLOGICAL CABINETS	MORTUARY CABINETS
GROCERS	X	X	X		X	X						
MEAT SHOPS	X	X	X									
CHAIN STORES	X	X	X		X							
BAKERIES		X									X	
HOTELS		X	X	X	X	X	X	X		X		
HOSPITALS		X	X	X				X	X	X	X	
INSTITUTIONS		X	X	X						X		
BANKS										X		
OFFICE BUILDINGS										X		
FACTORIES										X		
DRUG STORES					X	X				X	X	
RESTAURANT-CAFETERIAS	X	X	X	X	X	X	X	X		X		
THEATERS										X		
BOWLING ALLEYS					X	X	X			X		
ROAD SIDE INNS	X				X	X	X			X		
CLUBS	X	X			X	X	X			X		
FLORIST	X											
SCHOOLS	X									X		

Chart prepared by H. M. Wible of Westinghouse showing types of equipment that can be used in various commercial refrigeration markets.

Wible Describes Commercial Refrigeration Application & Replacement Market

MANSFIELD—"The period of experimenting with the public's money on a commercial refrigeration installation is past, and at the present time merchants are pretty well sold on the idea that an automatic refrigeration system is a profitable investment," declares H. M. Wible, manager, commercial refrigeration sales, Westinghouse Electric & Mfg. Co., in discussing 1935 commercial refrigeration sales possibilities.

With the increasing experience of the manufacturing companies resulting from the problems their sales organizations are constantly uncovering, it is only natural that new markets are constantly being discovered, Mr. Wible points out.

"New machines and equipment must be designed to take care of these developments, and thus the commercial refrigeration industry received added stimulation," he declares.

"It has been recognized for a long time that dehydration of products is a problem of refrigeration, but only recently, through a multitude of tests,

has it been discovered that humidities should be, in general, much higher than was formerly thought necessary. This meant high refrigerant temperatures and helped the development of the blower coils. Air velocities were found to be vital to the proper refrigeration of products and this subject has been given much study.

"It has been found also that a great number of products other than foods required controlled temperature and humidity, sometimes to conserve space required for storage, sometimes to decrease rejects, and generally to increase saleability. These investigations are continuing in increasing numbers, and some of the turns being taken are so startling that no one knows just when some new application may spring up which will grow into a large volume by itself.

"In addition to all of this there is one factor which cannot be overlooked. Machinery will wear out. Much refrigeration equipment now in use has served its purpose, paid for itself several times over and is now ready for the scrap heap. It will be replaced with a new, modern, automatic machine which will do its job much more efficiently than the old machine ever did."

Public demand for better foods and safety for the consumer is forcing the reluctant merchant to install mechanical refrigeration, believes Mr. Wible. For instance, the packing houses have been pioneer users of refrigeration. These packing houses now deliver in refrigerated trucks. The housewives in rapidly increasing numbers, own mechanical refrigerators, leaving in many cases the retailer as the only weak link in the chain of distribution. The merchant with the

ice box is losing favor with customers, whereas the one with the mechanical equipment is gaining in such numbers that he is forced, from a standpoint of preservation of his business to keep in step with the times.

"Hospitals of some years back, if they could afford it, had a central system of refrigeration, with possibly several miles of brine piping, a very wasteful way of securing desired temperatures since the introduction of commercial refrigeration, but effective as the best known system at the time," states Mr. Wible.

"If they couldn't afford such an elaborate system they used ice. It is doubtful if a hospital would be contemplated anywhere in the country without provision for mechanical refrigeration.

"Particularly for the hospitals the advance in the art is in very plain evidence in the form of refrigerants which are safe and can be piped into the building directly. Now, instead of the expensive indirect brine system the diet kitchens can have self contained boxes with ice cubes for ice packs, self contained water coolers for the floors and direct expansion installations for their kitchens, a great stride toward making the services of the hospital more efficient.

"In the dairy industry bonuses are paid in many sections to farmers for refrigerated milk. This is strictly in response to a public demand for safe milk, and safety in this case consists of low bacteria count. Commercial refrigeration keeps it low at a price the dairyman can afford."

Pointing out that the year 1933 marked the lowest point in this industry, Mr. Wible stated that in 1934 a decided improvement has been shown and the year 1935, following the expected general business trend, should, without any trouble, get back to 1931 levels.

Starr-Freeze Equipment Sold to U. S. Hospital

SAN FRANCISCO—The California Refrigerator Co. has just completed installation of a complete system of Starr-Freeze electric refrigeration units in the new Government hospital at Fort Riley, near the Golden Gate, reports Clarence F. Pratt, president of the California Refrigerator Co.

The government has also installed many Starr-Freeze units in unusual places along the Pacific coast, including lighthouse stations, Mare Island navy yard, and battleships of the Pacific fleet.

California Refrigerator Co. recently received a radiogram from the U. S. Colorado at sea, asking that service men meet the ship to adjust and check a Starr-Freeze unit while the ship was in San Francisco Bay for a few hours.

Kelvinator Equipment Installed in Mexico

MEXICO CITY, Mexico — Installations of Kelvinator refrigeration equipment made recently by Enrique Huber, Inc., Kelvinator dealer here, included "La Universal" bar, Mexico City; "Tulpan" ranch, owned by Manuel Garcia Pelaez; the mortuary at Hospital Jaurez, Mexico City; and "Sta. Maria" Coapa ranch, owned by Ramon H. Diaz. Senor Huber also had a large display of Kelvinator equipment at the recent Agricultural Exposition at San Jacinto.

Low Temperatures Held by Ice Cream Truck

MEMPHIS Tenn.—The insulated ice cream truck operated by the Drugists Ice Cream Co., Inc., of this city, is cooled to about 0° F. at 7 a. m. (start of the day's run) by three Kold-Hold units, which are connected to a plant ammonia compressor at night. The truck returns at 5 p. m. with a body temperature of 5° F. It has Dry-Zero insulation: 7 to 8 in. in the roof, 6 in. in all walls. The floor is insulated with 6 in. of corkboard. Truck body was built by the Carter Mfg. Co.

555 Inc., Will Distribute Humid-I-Coiled Line

LITTLE ROCK, Ark.—Five Fifty-Five, Inc., distributor of Kelvinator equipment in the Little Rock territory, has been appointed to handle the Hussman-Ligonier line of Humid-I-Coiled commercial refrigerators, according to announcement by the Allied Store Utilities Co. of St. Louis, manufacturer of Hussman-Ligonier equipment.

Kason Moves Factory to New Location

BROOKLYN, N. Y.—Kason Hardware Corp., manufacturer of hardware for refrigerators and store fixtures, has moved its factory to 127-137 Wallabout Street, here.

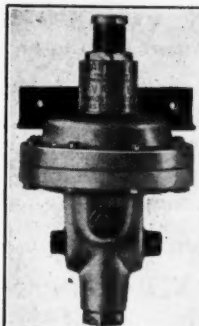
BUYER'S GUIDE

MANUFACTURERS SPECIALIZING IN SERVICE TO THE REFRIGERATION INDUSTRY

SPECIAL ADVERTISING RATE (this column only)—\$12.00 per space.

Payment is required monthly in advance to obtain this special low rate.

Minimum Contract for this column—13 insertions in consecutive issues.



BAROSTAT VALVES

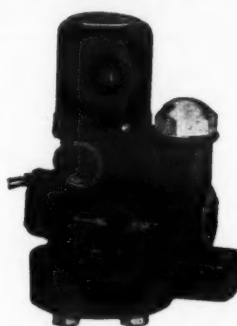
The Dependable Two Temperature Valve
It regulates pressure

Positive Seal — Snap Action — Adjustable

Built for Freon, Methyl Chloride, Sulphur Dioxide with non-corrosive parts thru-out. Approved by leading manufacturers.

Write for prices and description

BAROSTAT Co. 48 Binford St. Boston, Mass.



I'VE BEEN WORKING ON THE RAILROAD

This 70-N solenoid refrigerant control valve has been specially developed for railroad application and thousands have been installed. A special 32 volt D. C. coil opens up the small by-pass valve—power consumption is very low. Write for Bulletin 402.

AUTOMATIC PRODUCTS COMPANY
121 N. Broadway Milwaukee, Wis.

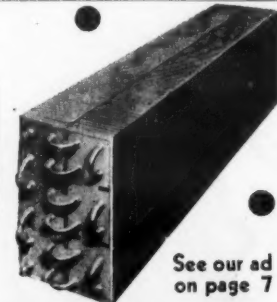
KRAMER

Commercial Evaporators

in 3" - 2 1/2" - 2" - 1 3/4" - 1 1/2" & 1 1/4"

Tube center built to any overall sizes and capacities

(Do you have our Commercial Evaporator Catalog with this information?)



See our ad on page 7

TRENTON AUTO RADIATOR WORKS

241 West 68th, N.Y.C. TRENTON, N. J. 5145 Liberty Ave., Pittsburgh, Pa.

Positive Overload Protection

WHEN you install a Ranco Thermostat, you know the overload unit is vigilantly on guard. The heating coil is permanently self-centered. No delicate "positioning." The coil is completely covered by a special ceramic material. It is located inside the body—not "floated" around.

the outside. Positive protection—minimizing service calls. Stainless steel cases. Write for latest bulletins.

RANCO
THERMOSTAT

THE AUTOMATIC RECLOSING CIRCUIT BREAKER CO., Columbus, O.

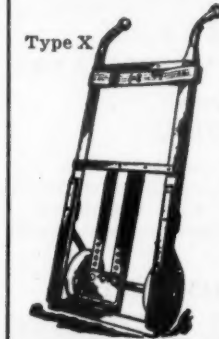


Refrigeration PARTS and SUPPLIES

Send for New Catalog No.109
The HARRY ALTER CO.

1728 S. MICHIGAN AVE. CHICAGO, ILL. U.S.A.

8,000 ITEMS FOR ALL MAKES
DOMESTIC COMMERCIAL AIR CONDITIONING



The DAYTON CARRIER TRUCK

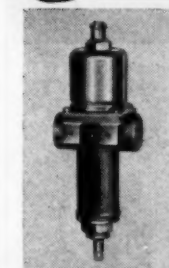
Deliver your Refrigerators on Rubber
Will Not Mar—Speeds Delivery

Two sizes—Type X with 53 inch handles and 8 inch rubber wheels—Type Y with 70 inch handles, 8 inch rubber wheels and skids.

Type X with one strap\$17.00
Type Y with one strap 18.50
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International Engineering Inc.
Dayton, Ohio 15 Park Row, N. Y.

STANDARD REFRIGERATING APPLIANCES



PRESSURE CONTROL WATER REGULATING VALVE

Write for bulletin on complete line covering refrigerating appliances, liquid line filters, dehydrators, acid neutralizers, standard parts and materials, service tools, shaft seals, bearing metals and parts. Descriptive literature will be gladly furnished on any or all of these lines on request.

AMERICAN INJECTOR COMPANY 1481 - 14th. Street, Detroit, Mich.

ANSUL GIVES



When you buy an Ansul Refrigerant, whether it is SULPHUR DIOXIDE or METHYL CHLORIDE you are certain of receiving a product that will give complete refrigerating satisfaction. To guarantee this, every cylinder is analyzed before shipment. You pay no premium for this service. It is but a part of Ansul's customary practise in providing their customers with the best at all times.

"20th Anniversary in the Production of Sulphur Dioxide"

ANSUL CHEMICAL CO.
MARINETTE - WISCONSIN

Economical Assembly

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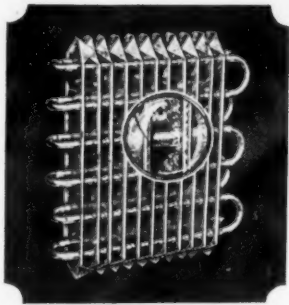
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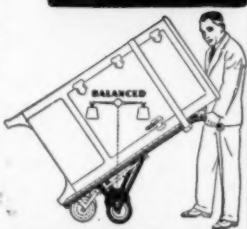
The heavy duty X-70 Refrigerator Truck fits all cabinets with or without legs or in the crate. Prevents damage to the cabinet, floor or walls. Only pads touch cabinet. Sturdy all-steel frame. One truck with top casters and handles for tilting and rolling into delivery truck and on stairs. Complete set \$34.50. Ball bearing swivel casters on one end \$5 extra.

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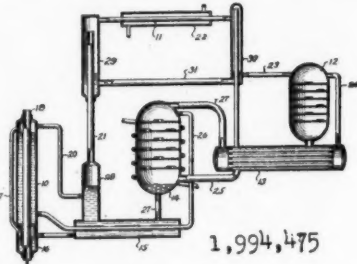


PATENTS

Issued March 19, 1935

1,994,475. ABSORPTION REFRIGERATION SYSTEM. Donald B. Knight, Brooklyn, N. Y., assignor, by mesne assignments, to Electrolux Servel Corp., New York, N. Y., a corporation of Delaware. Application May 5, 1931. Serial No. 535,102. 6 Claims. (Cl. 62-119.5.)

2. In an absorption refrigeration system of the pressure equalized type including a generator and absorber, thermo-

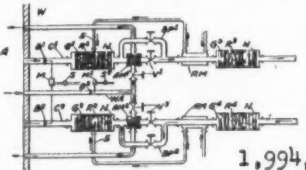


1,994,475

siphonic means for raising absorption solution from the absorber into the generator, and an analyzing vessel connected in the system to contain enriched absorption solution substantially to the level of liquid in the absorber, said vessel being connected below the liquid level to receive vapors from said generator.

1,994,515. AIR CONDITIONING SYSTEM. Helmut Hausen, Solin by Munich, and Lothar Meyer, Pullach by Munich, Germany, assignors to The Linde Air Products Co., a corporation of Ohio. Application Oct. 12, 1933. Serial No. 693,254. In Germany, Oct. 28, 1932. 9 Claims. (Cl. 257-8.)

1. The method of ventilating and conditioning an enclosure, which comprises discharging air from the supplying fresh air



1,994,515

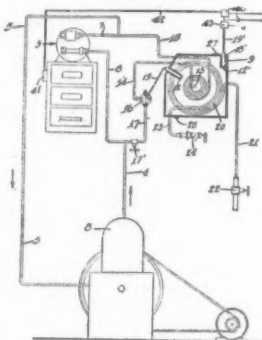
to said enclosure, extracting heat or cold from air being discharged, temporarily storing said extracted heat or cold, transferring heat or cold from such stored heat or cold to fresh air that is being supplied to said enclosure, separating moisture from the air entering said enclosure, and compensating for the losses occurring during the heat exchange by evaporating moisture into the discharged air.

1,994,523. AIR CONDITIONING DEVICE. John Kohut, Boonton, N. J. Application Oct. 16, 1931. Serial No. 569,238. Renewed Aug. 21, 1934. 3 Claims. (Cl. 261-104.)

1. An apparatus for converting liquid into a molecular suspension thereof in a gas comprising a housing, a plurality of superposed compartments in said housing, a plurality of vertically supported porous tubes extending through said compartments, means for circulating a current of gas upwardly through said tubes, a partition having perforations in alignment with the inlet ends of said tubes, mounted below the latter and spaced therefrom, and means for admitting liquid to said housing between the lowermost of said superposed compartments and the said partition.

1,994,698. WATER COOLING DEVICE. Adolph F. Evers, Jr., Denton, Tex. Application Aug. 24, 1931. Serial No. 559,093. 4 Claims. (Cl. 62-141.)

1. A refrigerator cabinet having a main refrigerating coil, a brine tank inside of the cabinet, a refrigerating coil in the



1,994,698

tank to cool the brine, a water coil immersed in the brine, a source of refrigerant supply common to both coils, and a thermostatic control in live thermal contact with the brine comprising means for separately controlling the refrigerant flow to the brine tank refrigerating coil regardless of the cabinet temperature responsive to the main refrigerating coil.

1,994,766. AIR CLEANER AND WASHER. George L. Heglar, Almira, Wash. Application June 25, 1934. Serial No. 732,267. 4 Claims. (Cl. 183-12.)

1. An air cleaner comprising a housing having separable upper and lower sections, an air inlet tube extending vertically in said housing with its upper end projecting through the top of the housing and its lower end spaced from the bottom of the housing, a perforated baffle plate supported in spaced relation to the bottom of the housing, a cylindrical screen rising from said baffle plate and surrounding the lower end of said tube, a disk of screening in said housing in spaced relation to the baffle plate and upper end of the cylindrical screen, a pad of porous material between the disk and plate, baffle disks about said tube above

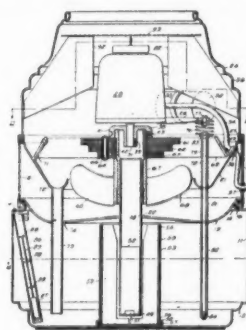
the cylindrical screen having their margins spaced from walls of the housing, and screen disks surrounding the tube above the baffle plates, an outlet being formed in a side of the housing above the upper screen disk.

1,994,858. SEAL FOR ROTARY ENGINES AND THE LIKE. Arnold Lack, Wilmette, and Olaf E. E. Stromberg, Chicago, Ill., said Lack assignor to said Stromberg. Application, July 29, 1932. Serial No. 625,876. 6 Claims. (Cl. 286-7.)

4. Packing means comprising two concentric split packing rings located in a plane perpendicular to their central axis, the opposed edges of said rings being inclined away from one another, a wedge ring associated with them having opposed surfaces one in engagement with the inclined face of each of the packing rings, a member in which said rings are socketed having annular walls adapted to be engaged by the outer periphery of the outer ring and the inner periphery of the inner ring, the back of the wedge ring removed from its inclined faces being annularly slotted and spring means contained within said annular slot adapted to force the wedge ring into engagement with the packing rings to spread them apart and to press them in a direction parallel with their central axis.

1,994,912. MOTOR DRIVEN HUMIDIFIER. Paul E. Hochstetter, East Springfield, Mass., assignor to Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application May 3, 1933. Serial No. 669,179. 8 Claims. (Cl. 261-91.)

1. A motor driven humidifier including a water tank, a fan chamber thereon having a lower pan resting on the tank and



1,994,912

an upper pan spaced from the lower pan and cooperating therewith to provide inlet air paths, a fan located within the fan chamber, a vertical shaft motor driving the fan and supported by the lower pan, and a hood supported directly by the upper pan.

1,994,914. FAN MOTOR. Richard H. Jordan, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Sept. 10, 1932. Serial No. 632,491. 14 Claims. (Cl. 250-256.)

10. A fan motor including a motor-driven fan assembly, means whereby the fan assembly may be tilted, manual means for controlling the energization of the motor and means actuated by the manual control means for returning the fan to its untitled position after the same has been tilted.

1,994,988. CONTROL DEVICE. Lewis W. Eggleston and Earnest J. Dillman, Detroit, Mich., assignors to Detroit Lubricator Co., Detroit, Mich., a corporation of Michigan. Application April 16, 1932. Serial No. 605,592. 12 Claims. (Cl. 200-140.)

1. A device of the character described, comprising a support, means carried by said support and responsive to a fluid characteristic, a horizontally reciprocable member movable by said responsive means, an operating member carried by and projecting transversely from said reciprocable member, said operating member being positioned between the ends of said reciprocable member, means resisting movement of said reciprocable member by said responsive means, a movably supported control means positioned at one side and between the ends of said reciprocable member, and spaced abutment members projecting from said control means and receiving therebetween said operating member.

1,995,006. PIPE JOINT. Oscar B. Mueller, Harold K. Rader, Wilfred H. Proctor, and Philip L. Irving, Port Huron, Mich., assignors to Mueller Brass Co., Port Huron, Mich., a corporation of Michigan. Application Aug. 2, 1933. Serial No. 683,280. 9 Claims. (Cl. 285-117.)

1. A joint comprising a pair of telescoping members, one of said members having an annular groove therein in the region of telescoping engagement with the other member, and an opening communicating said groove with the exterior of said member, said groove having a shallower portion and a deeper portion, and a locking ring positioned within said groove, said locking ring being so shaped that, as the said members are telescoped together, it is forced into the deeper portion of said groove to permit free entering motion of the entering member, but when said members are moved in the direction of separation, it moves into the shallower portion of said groove positively to lock said members against separation, said groove also being adapted to distribute sealing material introduced through said opening throughout the said region of telescoping engagement.

1,995,107. HUMIDITY CONTROL SWITCH. Carl Schlatter, Webster, Mass., assignor to S. Slater & Sons, Inc., New York, N. Y., a corporation of Massachusetts. Application April 23, 1931. Serial No. 532,140. Renewed March 13, 1933. 6 Claims. (Cl. 200-52.)

1. A humidity control comprising a membrane adapted to change in length in response to changes in humidity, means for securing one end of said membrane, the other end being movable, a tension producing means, a connection between the movable end of said membrane and said tension producing means, a pivotally mounted switch, means for limiting the movement of said switch in

either direction, and means associated with said connection and said switch for causing movement of said switch in one direction under the influence of said tension producing means upon expansion of said membrane and in the other direction under the influence of said membrane upon contraction thereof, said last-named means being adapted to release said membrane from said switch upon contraction of said membrane in excess of that necessary to cause a full movement of said switch, whereby the subjection of said membrane to injurious tension is avoided.

1,995,124. REFRIGERATING SYSTEM. Frederick A. Kolster, New York, N. Y. Application May 6, 1932. Serial No. 609,556. 11 Claims. (Cl. 62-108.5.)

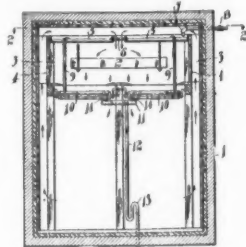
1. Refrigerating apparatus comprising a freezing unit, a container movable between discharge and freezing positions, a hollow pivotal support for said container, a heating unit associated with said container, a switch controlling movement of said unit upon pivotal movement of said container, and electrical connecting means extending through said hollow pivotal support for connecting said heater unit with said switch.

1,995,167. EVAPORATOR. Stewart S. Battles, Chicago, Ill., assignor to Ingersoll Steel and Disc Co., Chicago, Ill., a corporation of Illinois. Application Jan. 14, 1933. Serial No. 651,715. 13 Claims. (Cl. 62-126.)

1. In a cooling unit for a refrigerator, an inner metal shell and an outer metal shell, said shells being substantially rectangular in cross-section, a metal expansion coil disposed between the shells and including a plurality of longitudinally extending loops, each said shell including a flanged portion snugly engaging the ends of the loops, means sealing the shells together at their marginal edges to form an air-tight space between the shells which may be evacuated.

1,995,191. APPARATUS FOR PURIFYING AIR IN CLOSED CHAMBERS. Robert Rutledge, Toronto, Ont., Canada. Application Dec. 10, 1932. Serial No. 646,581. 5 Claims. (Cl. 62-89.)

1. Refrigerating apparatus comprising a closed chamber; a refrigerating unit positioned in the chamber adjacent the top



1,995,191

thereof; a pan positioned in the chamber above the refrigerating unit adapted to contain a shallow body of water of extended surface; means for supplying fresh water to said pan and withdrawing surplus; and means for guiding rising air over the pan and for directing it down to the refrigerating unit and towards the bottom of the chamber.

2-Oven Range Added to Waldorf Line

DETROIT—Electromaster, Inc., has added a two-oven range to its Waldorf line, the new model having the buffet cabinet characteristic of the Waldorf line.

This model, which sells at less than \$200, has the three-heat toggle switches.

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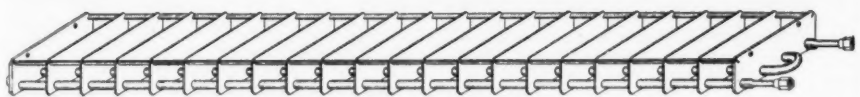
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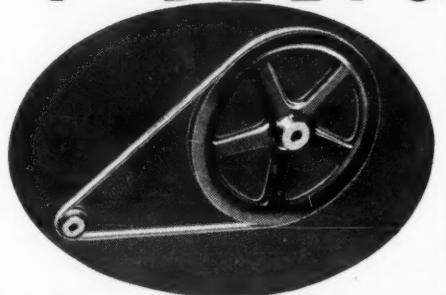
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QUESTIONS

Skinner's Article

No. 2152 (Finance Company, New York)—"I would greatly appreciate your adding my name to your mailing list to receive a copy of the issue that will carry the article written by Mr. M. E. Skinner of the Niagara Hudson Power Corporation."

Answer: The article written by Mr. M. E. Skinner of the Niagara Hudson Power Corp. was published in the Feb. 13 issue of the News, a copy of which may be obtained for 10 cents.

Ice Cream Freezer

No. 2153 (Distributor, Connecticut)—"Please give me whatever information you can concerning the motor driven ice cream freezers which fit in the coils of household refrigerators. I would appreciate information specifically concerning the Easy-Way freezer, sold by the Easy-Way Co., 432 West Market Road, Chicago."

Answer: We are interested in marketing something of this nature but would like to know first whether it is practical, and secondly whether the company behind the product is sufficiently strong so that they will continue the manufacture of it for a reasonable length of time.

"I know that this is an unusual request but we do not know anyone else whom we can ask, so we shall appreciate your kindness in helping us in this matter."

Answer: A story published on page 1 of the April 25 issue of ELECTRIC REFRIGERATION NEWS gives detailed information about the Easy-Way freezer.

Dayton Refrigerator

No. 2154 (Service man, New Jersey)—"We would like detailed information on the present Dayton Refrigerator."

Answer: Complete specifications of all models of the Dayton refrigerator line were given on page 17 of the March 20 issue of ELECTRIC REFRIGERATION NEWS.

This issue also contains specifications of all other leading makes of household electric refrigerators.

Revolving Food Dishes

No. 2155 (Manufacturer, Pennsylvania)—"In one of the recent issues of ELECTRIC REFRIGERATION NEWS, published by you, there was an item describing some revolving food dishes."

Answer: We shall appreciate your informing us where we could get detailed information on this item and possibly a sample set.

Answer: Revolving food dishes for use in household electric refrigerators are manufactured by Bellaire Enamel Co., Bellaire, Ohio. This company makes a set of six or eight dishes which are placed on a revolving wheel. For detailed information concerning these dishes, we suggest that you communicate directly with the manufacturer.

Beer & Water Cooler

No. 2156 (Service company, Kansas)—"Could you tell me the name of several refrigeration companies that make a combination pop or beer cooler and water cooler combined with compressor complete or something in that line."

Answer: The 1935 REFRIGERATION DIRECTORY, with up-to-date lists of manufacturers of all types of refrigeration and beverage cooling equipment and parts, will be ready for distribution within a week.

Refrigerator Sales in U. S.

No. 2157 (Distributor, California)—"Being a subscriber to REFRIGERATION NEWS, would it be possible for you to give us the total number of electrical refrigerators manufactured and sold in the United States only, not including foreign sales."

Answer: We understand that you have made a survey as to the approximate number of the refrigerators that are in operation at the present time.

Answer: The News estimates that approximately 1,283,000 household electric refrigerators were sold in the United States only in the year 1934. This figure represents sales by manufacturers to distributors and dealers, and not direct sales to the consumer. We have also estimated that there are approximately 5,825,000 household electric refrigerators in use in the United States as of January 1, 1935.

A detailed analysis of 1934 sales including these figures was published on pages 1 and 13 of the February 20, 1935 issue of ELECTRIC REFRIGERATION NEWS.

Accessories

No. 2158 (Manufacturer, New York)

"Can you give us the names of manufacturers of rolling pins, glass dishes, defrosting pans, and other gadgets for electric refrigerators?"

Answer: Manufacturers of refrigerator accessories are listed on pages 253, 254, and 255 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY, which will be ready for distribution within a week.

'Auto' Compressor

No. 2159 (Service company, Illinois)—"We would appreciate the name and address of the manufacturer of the 'Auto' compressor. These are small compressors for domestic refrigerators."

Retail Prices

No. 2160 (Reader, New York)—"We are anxious to be kept posted monthly with the domestic retail prices of the following makes of electric refrigerators: Frigidaire, General Electric, Norge, Kelvinator, Apex, Grunow, Gibson, Stewart-Warner, Westinghouse, Atwater Kent, and should be glad to hear whether your publication gives this information."

Answer: Prices for most of the leading makes of household electric refrigerators were published with the specifications of these refrigerators in the March 20 issue of ELECTRIC REFRIGERATION NEWS. Any changes in these prices will be noted in the form of a news item in future issues of ELECTRIC REFRIGERATION NEWS, although this information is not posted as a weekly or monthly service in the issues of the News.

Refrigerator Gas Drums

No. 2161 (Distributor, Iowa)—"Will you please be so kind as to advise us names of manufacturers who can supply us with refrigerator gas drums."

Answer: We find the Prestolite Mfg. Co., listed but there are undoubtedly more.

Answers: Other companies besides Prestolite which might be able to supply refrigerator containers of this type are:

Liquid Carbonic Corp., 3100 S. Kedzie Ave., Chicago, Ill.; and National Steel Products Co., 1611 Crystal Ave., Kansas City, Mo.

Breakdown of Sales

No. 2162 (Reader, Ohio)—"Have you a breakdown of sales of electric refrigerators by population groups? A table of sales for cities over 200,000; 75,000 to 200,000; under 75,000; or similar breakdown is needed in a study we are making for our client."

Answer: If sales figures of recent years are not available, perhaps you would have saturation by size of cities.

"We will be exceedingly grateful for any help you might be able to offer us in securing this data."

Answer: We do not have a breakdown of household electric refrigerator sales by population groups, nor do we have a record of saturation by size of cities, although we do know that saturation is usually higher in the larger cities than in smaller communities.

We would suggest that you obtain a copy of the Real Property Inventory for 1934, made by the Department of Commerce. This was a survey made in 64 American cities during the past year, which, among other data included the percentage of families owning mechanical refrigerators. These 64 cities fall into fairly representative population groups. By grouping them according to population and comparing their saturation percentages, you might be able to get some of the information which you need.

Complete results of the Real Property Inventory were published in the following issues of ELECTRIC REFRIGERATION NEWS: May 23, June 20, July 11, October 10, 1934, and January 2, 1935. Summary results of the Real Property Inventory were published in the November, 1934 issue of the Survey of Current Business issued by the Department of Commerce.

'Opalite Defrostrays'

No. 2163 (Manufacturer, Indiana)—"We have a cable inquiry from abroad for 'Opalite Defrostrays.' Will you please help us to locate the manufacturer?"

Answer: The Acorn Opalite Metal Specialties Co. of Chicago says 'defrostrays' are out of our line, sorry."

Answer: We do not have "Opalite Defrostrays" in our list of trade

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names as used by a manufacturer of refrigerator trays.

However, we note that the following manufacturers of porcelain ware use the trade name "Opalite" and suggest that you might communicate with them:

Sani Products Co., North Chicago, Ill.; and Chicago Hardware Foundry Co., Thomas Bldg., North Chicago, Ill.

Manufacturers of defrosting trays are listed on page 253 of the 1935 REFRIGERATION DIRECTORY, which is being distributed this week.

Household Specifications

No. 2164 (Distributor, Illinois)—"Would like to know if it is possible to obtain from you information on all makes of refrigerators, which would describe same, such as capacity and construction."

Answer: See below.

No. 2165 (Distributor, Maryland)—"I wonder if it would be possible for you to give us some information regarding the various types of compressors used in refrigerators."

Answer: We are thoroughly familiar with the rollator principle used by Norge, but we would like to know what type compressors are used in the leading refrigerators, such as General Electric, Frigidaire, Fairbanks-Morse, Kelvinator, Leonard, etc., and whether or not these companies manufacture their own compressors or the source which they purchase them."

Answer: Specifications of all leading makes of household electric refrigerators were published in the March 20 issue of ELECTRIC REFRIGERATION NEWS.

Artificial Ice Cubes

"In your issue of March 9th, the manufacturer in Ohio (No. 2100) asked where to buy transparent glass ice cubes. You will note from this letter head 'everything for refrigeration' and we cannot understand why you did not refer him to us."

Answer: We carry a complete stock of such cubes and can supply these at any time. These cubes are one inch square, retail for nine cents each and the dealers discount is 30 per cent.—Clarence F. (Sandy) Pratt, President, California Refrigerator Co., 1077 Mission St., San Francisco, Calif.

Service Company

"Re: Question 2101, March 6, 1935 issue:

"For your information we are interested in general refrigeration service and would be pleased to assist the Eastern manufacturer."

"We are only next door as we term it on the desert to Earp; that is, about 135 miles."—H. E. Fatzinger, mgr., Refrigeration Dept., H. T. Fothergill, "The Ranchers' Supply House," Coachella, Calif.

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